

The MILLING WORLD

and CHRONICLE OF THE GRAIN and FLOUR TRADE.

PUBLISHED EVERY THURSDAY MORNING.

VOL. X.—No. 6.

Buffalo, N. Y., June 5, 1884.

\$1.50 Per Year.
Single Copies, 3 Cts.

THE HEATING OF WHEAT IN STORAGE.

EVERYBODY is at present so intensely interested in roller milling and all things appertaining to it, that even the smallest change is noted and discussed for the general benefit, says the *Oesterreichisch-ungarische Mueller*. And yet those minor details are not near as important as we like to believe them, for they largely depend upon the quality of the wheat, and the wants of the customers. Thus by expecting too much from the roller system, millers are apt to neglect certain more important factors which cannot be remedied even by the best rollers and the best attendance.

We do sometimes, but seldom, find a miller who relates in one of the milling journals his experience in certain points which appear valuable enough to him for publication. But more generally he will keep the knowledge obtained at his own cost, to himself. If we do meet a man who is willing to allow his fellow men to profit by his experience, he mostly tells us that the wheat has to be put into the proper condition for reduction before being fed to the rollers, and such communications generally contain a large amount of advice with regard to the cleaning of the grain.

Of course, we know that it is impossible to give too close attention to the cleaning process, but how often has it occurred to millers that wheat can be spoiled prior to such cleaning process? And when temperature, moisture or heat have once exerted their deleterious action upon the grain, of how much use will even the most careful cleaning be found?

We will to-day look especially at the heating of wheat when in store, for we do believe that a little more careful attention will be of great service here.

In the building of smaller mills the facilities for grain storage are often insufficient or neglected, due mostly to misplaced economy. That the heating should be prevented, is admitted by everybody, and yet the fact is ignored only too often, as long as the storage room is reasonably large enough. Here the heating takes place quite frequently, and the question is "what can be done?" The first move is to bring the wheat into another receptacle; but this is not sufficient, and beneficial only because it allows the free access of air through the stored grain. This access of air from the outside should take place constantly from all parts of the store room. Air is as necessary for wheat, and other vegetable matter, as it is to men and beasts.

Often we find the grain bins too deep. Take for instance wheat stored to the depth of 18 feet, and we must admit that heating under such pressure will be an easy matter. Millwrights would, indeed, confer a favor upon the milling fraternity, if they would invent some cheap and simple grain bin for small mills which cannot afford to construct costly elevators or silos.

The heating can be partially prevented by blowing the dust from the grain before storing it. It seems well to call the attention of the millers to this heating question, for the strength of the flour depends upon the gluten contained in the wheat, and heating exerts a very injurious action upon the quality of the gluten, producing a poor grade of flour. This knowledge has been

gained by practical experience, and although its publication may be received with a smile by millers who have the very best of facilities to prevent any heating of their grains, it may be of service to some few who are less favored and give them a small hint to prevent future losses.

MILLING STATISTICS IN AUSTRIA.

According to the statistics recently published by the Imperial Department of Trade, we find that Austria, exclusive of Hungary, contains 760 milling establishments, operated by 193 steam engines of 7,213 horse power, 171 turbines of 3,922 horse power and 1818 water wheels of 17,236 horse power, together 2,182 motors, capable of exerting a power equal to 28,371 horse power. These mills together give employment to 7372 men, 110 women and 70 children below the age of fourteen years. The products turned out of these establishments represented a value of \$46,000,000.

"These statistical tables are open to a serious objection, as far as their reliability is concerned," says Pappenheim's *Mueller Zeitung*. "They do not represent the total industry, for they enumerate only those mills which are taxed more than \$18. Now we find throughout Austria numerous small mills which do not pay so high taxes, but, taken in the aggregate, they represent quite a respectable industry and there is no reason why they should be omitted from these statistical tables. In addition we find that the statistics do not discriminate between rollers and burr runs; that would have been an easy undertaking and no harder than the division of weavers into hand and power weavers. It would have been more important to know the milling systems of the whole industry, than the compilation of steam, turbine or water wheel power, because in our present transition stage reliable data as to the number of roller mills compared to stone mills is of great practical value. The total absence of the word 'roller mill' in these statistics admits the serious suspicion that the compiler did not know anything about the existence of such a piece of milling machinery."

AMERICAN TRADE IN BRAZIL.

The deep interest felt in the revival of American shipping will justify the continuance of full statistics of the number and tonnage of American vessels trading at this port, says the American Consul at Rio de Janeiro in his latest report to the government. By comparing the returns of the past two years it is seen that an important increase has taken place in American steam navigation at this port; during the year 1883 the number of American steamers arriving at this port was fourteen with 26,793 tons capacity, an increase over the preceding year of ten steamers and 19,809 tons, the number of American sailing vessels arriving here during 1883 was 82 with a capacity of 47,561 tons, a decrease of 321 tons as compared with the preceding year.

Flour was imported into Rio de Janeiro in 1883 to the extent of 450,883 barrels, against 403,630 barrels in 1882 and 404,175 barrels in 1881. Of this import 378,590 barrels were from the United States, principally Richmond, Va.; 29,571 barrels from

the River Plate, 22,130 barrels from Trieste and 15,060 barrels from Chili. A considerable part of this flour trade was in new hands, and inclined to be speculative and irregular. The consumption of flour increases but slightly, though nearly all of it is made into baker's bread of good quality which is consumed by all classes in this city. Brazil imports about 900,000 barrels of flour annually of which the greater part is from the United States. There has long been a regular flour trade between Rio and Baltimore and Richmond.

The highest prices per barrel at Rio de Janeiro during 1883 were as follows.

| | |
|---------------------|--------|
| Richmond..... | \$9.90 |
| Baltimore..... | 9.67 |
| Trieste..... | 9.90 |
| Western brands..... | 9.67 |
| River Plate..... | 8.38 |
| Chili..... | 7.75 |
| Canada..... | 9.52 |

The prices were a little higher in 1882 and in the month of June of that year, Richmond flour brought \$10.75 per barrel. Spring wheat patent flour has been tried here, and has been acknowledged by the bakers to be at least as good as Richmond, but they are disinclined to pay the higher price which is demanded for it. It would seem that the patent flour from Trieste commands no higher price than that from Richmond. The existence of a regular line of steamers between Trieste and Brazil, has afforded an opportunity for crowding, so to speak, the flour from that port on this market. Were it not for the exorbitant freight charges on the Brazilian railways a considerable market for flour would be found in the interior, and the importation and consumption of it thereby increased.

The import of flour to seven ports of Brazil, and which must have comprised about all that was imported into the country, was in 1882, as follows:

| | |
|---------------------|--------------|
| Rio de Janeiro..... | Bis. 439,717 |
| Para..... | 40,000 |
| Pernambuco..... | 166,908 |
| Bahia..... | 91,972 |
| Maranhão..... | 11,804 |
| Santos..... | 39,578 |
| Rio Grande..... | 96,075 |
| Total..... | 885,609 |

Of this number 658,849 barrels were imported from the United States and 130,366 barrels from Trieste. The duties on wheat flour are 64 cents per barrel, and fifteen cents on every hundred pounds on corn.

THE DIGESTIBILITY OF BRAN.

The investigations on gluten in wheat by Prof. Randolph, of Philadelphia, published in this paper on April 10, find an interesting supplement in the experiments carried on during the past five years in the Experimental Agricultural Station at Moeckern, Germany, by Prof. G. Kuehn on the question whether bran of wheat, and similar by-products of milling are made easier of digestion by boiling, or by a simple admixture of water. The reports by Prof. Kuehn, as published in various German papers, are of special value in more than one direction, and we translate the following abstract, embodying as much as possible the gist of these researches.

1) The mere moistening of the bran just before feeding does not produce any difference in its digestibility; and the addition of any watery mixture of bran to hay or other food does not improve the nutritive value of either.

2) The soaking of the bran with cold water for 24 hours produces the same results, whether fed separately or mixed, providing the quantity of water added to the bran does not reduce the thirst of the animal to less than half; that is, make the consumption of water less than 50 per cent. of that which the animals drink when eating their food in a dry state. If the watery bran admixture, with 22 to 30 per cent. of soakwater, reduces the capacity for drink in the animals to 25 per cent. of the quantity taken with dry food, the effects of such feeding become injurious, and the digestibility of all foods is lessened.

3) When the bran is subjected to the action of scalding water first, and soaked subsequently for 24 hours, the digestibility of the proteine in the food is lessened. This reduction is the larger, the higher the original temperature of the water used and the longer the time of its action.

4) Whether such bran soup and dry hay are fed separately or mixed does not influence the digestion in any way.

5) The action of boiling water on the proteine in the food, reduces its digestibility because the heat influences the albuminoids of the bran and hardens them.

So far these experiments were confined to bran of wheat and hay, but there cannot be any particular difficulty in testing the value of other products in a similar manner. It is an important lesson to know that the heating or boiling of wheat bran reduces its digestibility, because most everybody is inclined to think that boiling will, under every circumstance, prepare the food in a manner which tends to make digestion easier.

FRENCH MILLING INDUSTRY.

The persistency of inherited ideas finds a good illustration in French milling journals, where some of the writers still claim that the best flours can be produced on burr stones only, and that the best of the much praised roller flour has not a single point to prove its superiority over stone-ground flour. M. Felix Hardouin, who rejoices in the title of the champion of the mill-stone in France, distinctly disclaims that the question of roller or burr has anything to do with the decay of the French milling industry, but attributes it to other causes. In a recent issue of the *Journal de la Meunerie* of Paris. One of these causes, he claims, is the protective tariff, which, although favoring the agriculturist, is positively injurious to the interest of the millers. Such tariffs raise the price of bread even in years of abundance, not to mention the years signalized by a crop failure. The prices paid for wheat in France have rather declined, while wages have increased, and because the value of wheat will perhaps never increase permanently, the farmers of France would do well to turn their attention to such agricultural branches on which a fair profit can be had always, and allow the supply of wheat to be furnished by other countries where the grain can be grown at a cheaper price than in France.

Speaking about the cost of production of wheat M. Hardouin scores a strong point against the French farmers by saying that in the calculations given in order to demonstrate that wheat cannot be grown at less than a certain price, the farmers try to make us believe that their lands produce nothing

but the wheat during the whole year, which is not so. Such lands very often bring forth in addition a crop of beet roots, potatoes or other products, which are not taken into these calculations, but all the expenses of labor, manure, harvesting, etc., are put down to the credit of the wheat.

Any increase in the tariff on grains will be disastrous to the milling industry, because the products of the mill increase in value so much that a competition in foreign markets would be impossible, and even if the duties were reimbursed, it would increase the difficulties of trade in foreign countries. The prime causes of the decay of the French milling industry is the fact that the wheat is cheaper abroad than in France, and while the present wheat tariff is too small for the farmer, it is too high for the interest of the miller. French flour, which, until a few years ago was superior to any other, had to succumb when foreign flour arrived in France which was able to compete with the home product. (Here M. Hardouin fails to enlighten us on the question why foreign flour was able to compete with the French flours even in France.)

It was because foreign millers were unable to produce as fine a grade of flour on stones as the French millers, that the roller system was adopted, although it had been rejected almost sixty years ago. This system dispensed with any great care or knowledge on the part of the operator, and as it always allowed a certain percentage of fine flour to be obtained from hard wheat, it was speedily adopted by those who were in the habit of making inferior grades, and as these poor quality product often found a ready market, the present depression of the French milling industry, must, in part, be attributed to the roller system.

But for all that French millers do not need to change their old milling systems, and accept systems and methods which are useful in other countries; all they must do is to improve their present system. It is very easy to say that the failure is due to the system, but then we lose sight of the principal cause. We have now about twenty different milling systems to choose from, and millers will find it a difficult task to select from so large a number, which, nevertheless all agree in the one point, that the old time system must go.

In milling, as well as in all other industries, nobody will think of substituting a new system for the old one, unless the products will improve in some way. Now we know that no better flour is made anywhere than our "nine marks" standard, and the cost of its manufacture is lower than that of a similar quality obtained by any other process. We obtain by stones 76 per cent. of flour from good wheat, weighing 77 kil. per hectolitre, and no other process is capable of doing more, because the grain does not contain any more flour.

While rollers are very suitable for hard wheats, we cannot regard them as an improvement for soft or damp wheats. When our millers adopt the American, Hungarian or German systems, they simply copy, and their products will not be changed, neither will their conditions in regard to grain purchases be improved. French millers should, therefore, most strenuously resist the introduction of milling systems which they do not understand as a so-called improvement upon their present system, which they do understand and which is, beyond doubt, superior to anything yet been offered. If they will improve their present methods as much as possible, they will be able to maintain a better position in the present dull times and save themselves the expenses of useless and costly alterations.

ABOUT STARCHES.

Under the title "Chemistry of Cookery," Prof. W. Mattieu Williams, an English

chemist of great reputation, publishes a series of interesting notes on "Starches" in *Knowledge*, from which we reprint the following abstract:

Carefully dried starch can be heated to 300 deg. F., without any alteration, but at 400 deg. a remarkable change commences. The same occurs to ordinary commercial starch at 320 deg. If the heat is continued a little beyond this, it is converted into dextrin, also known as "British gum," "gommeline," "starch gum," and "Alsace gum," from its resemblance to gum arabic, for which it is extensively substituted.

The remarkable feature of this conversion of starch into dextrin is that it is accompanied by no change of chemical composition. Starch is composed of six equivalents of carbon and five of water, dextrin is the same, as is also gum arabic when purified, but their properties vary considerably.

The most remarkable agent in effecting this conversion of starch into dextrin is the so-called *diastase*. It is one of these mysterious compounds which have received the general name of "ferments." They are the disturbers of chemical peace, molecular agitators that initiate chemical revolutions, which may be beneficial or very mischievous. The morbid matter of contagious diseases, the venom of snake bites, and a multitude of other poisons, are ferments. Yeast is the most familiar example of a ferment and one that is best understood. Modern researches indicate that many of these ferments are microscopic creatures, linking the vegetable with the animal world; they may be described as living things which grow from germs and generate other germs that produce their like. None of these germs have as yet been demonstrated to constitute the ferment of diastase, though they may be suspected. Be that as it may, it is a most beneficent ferment; it communicates to the infant plant its first breath of active life, and operates in the very first stages of animal digestion.

In a grain of wheat, for example, the embryo is surrounded with its first food. While the seed remains above ground there is no assimilation of the insoluble starch or gluten, no growth, nor other sign of life. But when the seed is moistened and warmed, the starch is changed into dextrin by the action of the diastase, and the dextrin is further converted into sugar. The food of the germ, thus gradually rendered soluble, penetrates its tissues; it is thereby fed and grows, unfolds its first leaf upward, throws downward its first rootlet, still feeding on the converted starch until it has developed the organs by which it can feed upon the carbonic acid of the air and the soluble minerals of the soil. But for the original insolubility of the starch it would be washed away into the soil, and wasted ere the germ could absorb it. The maltster, by artificial heat and moisture, hastens this formation of dextrin and sugar; then by a roasting heat kills the baby plant just as it is breaking through the seed-sheath. Blue and red ribbon orators miss a point in failing to notice this. It would be quite in their line to denounce with scathing eloquence such heartless infanticide.

The starch which we take so abundantly as food appears to have no more food value to us than to the vegetable germ until the conversion into dextrin or sugar is effected. In the baking of bread an incipient conversion probably occurs throughout the loaf, while in the crust it is carried so far as to completely change most of the starch into dextrin and some into sugar. The final conversion of starch-food into dextrin and sugar is effected in the course of digestion.

Mention should be made here of a form of nearly pure starch-food, tapioca, which is obtained by pulping and washing out the starch granules of the roots of the *manihot*, then heating the washed starch in pans and stirring it while hot. This cooks and breaks

up the granules and agglutinates the starch into nodules which are coated with dextrin, to which gummy coating some of the peculiarities of tapioca-food are attributable. It is a curious fact that this manihot-root, from which our harmless tapioca is obtained, is terribly poisonous. The plant is one of the large family of nauseous spurge-worts (*Euphorbiaceae*.) The poison resides in the milky juice surrounding the starch granules, but being soluble in water and volatile, most of it is washed away in separating the starch granules, and any that remains after washing is driven off by heating to 240 deg. F., in order to effect the above described changes.

Sago, which is a starch obtained from the pith of a stem of the sage-palm, is prepared in grains like tapioca, with similar results. Both sago and tapioca contain a little gluten, and therefore have more food value than arrow-root, which contains none.

ABSORPTION OF WATER BY GRAIN.

It is well known that grains contain a certain quantity of water even after they are dried, generally from 14 to 15 per cent. of their weight. When such grains are stored in very dry places, a small portion of this water evaporates; when stored in damp places, they absorb water. To determine the ratio of this loss or gain of water, was the subject of a series of careful investigations made by Prof. Wilhelm, of Vienna, on wheat, barley, rye and oats. The results we translate from the *Maschinen Industrie Zeitung*, as follows:

The experiments were made in cylinders divided into two compartments by a wire netting. Below the wire a basin of water was placed, above the wire a basin with the grain, the moisture of which was to be tested. A glass plate closed the cylinder. Consequently the grain was placed in a receiver, the air of which was kept moist by the evaporation of the water placed below. Although the moisture in the air was not determined by any special apparatus, there cannot be any doubt that it was nearly, if not totally, saturated. The moisture in the grains at the commencement of the experiments varied, reaching its maximum of 14.56 per cent. in barley. At the end of the experiment the grains contained the following percentage of moisture:

| | | |
|-------------|-------|-----------|
| Wheat..... | 16.84 | per cent. |
| Rye..... | 18.19 | " |
| Barley..... | 17.49 | " |
| Oats..... | 15.58 | " |

The difference becomes more apparent when the earlier and the final quantity of moisture are seen together in a sample of grain weighing 100 grammes.

| | Beginning with | Ending with | Increase |
|-------------|----------------|-------------|----------|
| Wheat..... | 15 94 gr. | 20 24 gr. | 4 30 gr. |
| Rye..... | 16 61 " | 22 24 " | 5 63 " |
| Barley..... | 15 69 " | 21 22 " | 5 52 " |
| Oats..... | 15 24 " | 21 33 " | 6 09 " |

The daily increase in weight (in grammes) in the different experiments are as follows, for each 100 grammes of dry grain.

| | 1st day. | 2d day. | 3d to 5th day. | 6th to 10th day. |
|-------------|-------------------|-------------------|-------------------|------------------|
| Wheat..... | 0.674 | 0.884 | 0.312 | 0.180 |
| Rye..... | 0.876 | 0.728 | 0.376 | 0.302 |
| Barley..... | 1.248 | 0.695 | 0.503 | 0.301 |
| Oats..... | 2.482 | 1.889 | 0.344 | 0.233 |
| | 11th to 15th day. | 16th to 20th day. | 21st to 25th day. | 1st to 25th day. |
| Wheat..... | 0.154 | 0.000 | 0.014 | 0.172 |
| Rye..... | 0.223 | 0.49 | 0.49 | 0.255 |
| Barley..... | 0.109 | 0.000 | 0.000 | 0.221 |
| Oats..... | 0.012 | 0.000 | 0.000 | 0.244 |

From these tables we see that the absorption of moisture was, under all circumstances, most rapid during the first day, declining rapidly after that. In addition we must admit that grains exposed to moist air, can absorb a considerable quantity of water, even as high as an additional increase of the original moisture of thirty-two per cent. This factor should enter into our calculations when grains are stored in damp places, or are exposed to a trans-

portation by water; in these cases the weight can be increased considerably by the absorption of moisture, and the water originally found in the grain should therefore be known, and our calculations of the value should consider the increase of moisture in all cases.

CANADIAN FREE CANALS.

The Canadian Government has been prompt to act upon the demand of the Montreal Board of Trade and other commercial bodies for an abolition of tolls on the Dominion canals, in order to enable the grain trade to compete with the United States, says the *New York Daily Commercial Bulletin*. The action, however, is but partial, and probably experimental; that is to say, they have met the trade half-way, and have agreed, in view of the promised reductions by the Elevator Companies and the forwarders, to take off one-half the tolls. Having gone thus far, however, there can be no question that, under the same pressure of public opinion which has urged them to the present step, the Government will be obliged ultimately to abolish the tolls in toto. Already the leading journals are insisting upon this. "Every quarter of a cent a bushel," says the *Montreal Gazette*, "must tell in the struggle for this portion of the trade. Had Government conceded all that was asked, with the reductions to be made by the elevator and forwarding companies, it would have been equal to one cent a bushel, and this would be an important factor in securing consignments by this route. Can it still be accomplished? We believe it can in one way, and only in one way. The Montreal Harbor Commissioners might take off the harbor dues upon grain. These amount to 7½c per ton, or in round figures about ¼c a bushel, which, with the reduction made on the canal tolls, would amount to about the same thing as if the grain tolls had been taken off the canals altogether." The Harbor Commissioners will hardly be able to resist the appeal in which case Montreal doubtless will regain some of the trade that has been slipping from her. Coincident with this, we have the following important announcement in the *Chicago Times*:

"It was stated in commercial circles that the excessive tolls levied on American vessels in the Welland Canal had been abolished. The understanding was that some shippers had received a dispatch to that effect. With these tolls off, vessels can carry grain ¼ a. ½c per bushel cheaper than when they have to pay them. In other words, the tolls bar shipments from Chicago through the canal by ¼ a. ½c per bushel. A petition was sent to Ottawa from Chicago several days ago. If the reports are confirmed, there will be an immediate revival of the through grain trade from Chicago to Lake Ontario and the St. Lawrence."

It is to the credit of the Dominion Government that at the same time it reduces canal tolls on grain for the benefit of its own people, it also removes a serious discrimination against American vessel-owners, their competitors. It is a step which will go a long way in disposing the public mind in favor of renewing reciprocal commercial relations between the two countries on a liberal basis.

THE DISCOVERY OF ANTHRACITE COAL IN COLORADO.

It has been universally accepted that outside of Pennsylvania no anthracite coal could be found in the United States, excepting a small deposit on Rhode Island. The claim is now made by the *Boston Commercial Bulletin* that there is a large deposit of anthracite coal in Colorado, and a company, of which all the trustees are Philadelphians except the president, who is Congressman Belford of Colorado, has been organized to develop the property. The coal is located in Gunnison County,

Colorado. It comprises nearly four sections or about 2500 acres. The extreme northern limit of the property is about seven miles distant in a north northwesterly direction from Crested Butte, the present terminal of one of the branches of the Denver & Rio Grande Railroad.

Any one acquainted with the coal market will readily see that the actual existence of large and workable beds of anthracite coal in the West would be of immense importance. As it now is the west is dependent either upon native lignite coal or upon the Pennsylvania mines. The cost of anthracite, owing to the long freight haul has therefore been large and its consumption has been restricted. As the West has gained in material prosperity, however, the demand for anthracite has increased and it is probable that more Pennsylvania anthracite, or hard coal, as it is popularly called, will be consumed in the West this year than ever before. But with a Western anthracite mine the consumption would be very large, as this coal is greatly to be preferred to soft coal for domestic purposes.

The company owning the Colorado mine claim that the existence of three well-marked beds has been established with strong probabilities of a fourth seam. The three seams all carry coal having all the external characteristics of Pennsylvania anthracite. It has a high and decidedly vitreous lustre; a jet black color; breaks with sharp edges; has a specific gravity somewhat less than the average Pennsylvania anthracite; but in all physical and chemical respects is closely allied to that coal, and worth as fuel 95 per cent as much. Investigating engineers estimate that there are 14,000 tons in the acre after deducting 25 per cent for wastage in working. Inasmuch as it is believed that one-half the property, or about 1280 acres, is underlain with coal, there would be 19,000,000 tons at this moderate estimate.

No engineer can certainly tell what is hidden in the depths of a mountain. There may be much more than is estimated or less. That there is a large quantity of hard coal in the property seems to be a fact. If it possesses the burning qualities attributed to it and if it can be developed as easily as the company assert, Colorado anthracite coal will soon be heard from. The value of such a coal to the metallurgical industry and to the domestic economy of the West would be great, indeed.

MECHANICAL MEANS OF PRODUCING COAL.

It is probable that within a few years the storing and selling of ice will be dispensed with we are told by New York papers. By mechanical and chemical devices a cold atmosphere can be induced of a temperature so low that artificial ice very readily forms. These are used where many animals are killed and stored for food between the decks of vessels which take dressed meats from America to Europe, and in storage warehouses in which are kept eggs, butter, cheese, meat and poultry. In the St. John's Railway Depot in New York is a series of some ninety rooms, covering an area of 30,000 square feet, which are kept at a freezing temperature all the year round by means of a pipe running along the ceiling through which the freezing mixture from the tank is sent. In a great apartment-house in West 23d St., in New York, there will be a cooling as well as a heating apparatus affecting all the rooms.

In addition to being lit by electricity, and heated by the steam from the engine that runs the dynamos, every room will contain a coil through which will circulate a freezing mixture forced up from the cellar. Thus on a burning hot day in July and August the occupants of this great apartment-house can turn on the cooling air and produce ice in their rooms, if they wish to do so.

Saloon and sleeping cars can be refrigerated in mid-summer, and thus kept comfortably cool. The manufacturers of the apparatus say that after the first cost of the plant, the running expenses would not be two cents a day for each refrigerator, which is far cheaper than ice, apart from the cost of handling and storing the latter.

It will not be in order any longer to class Nebraska among the semi-civilized border States, says the *American*, where ruffianism is the rule and the law is a mere laughing-stock, for the trial and conviction of a prize fighter on Saturday, at Omaha, with the resultant sentence of three years' hard labor in the penitentiary, proves that in some things Nebraska is far in advance of many older States. As a matter of course the case has been appealed, but as the trial lasted nearly a week, there can be little doubt that the jury arrived at their verdict with a full knowledge of all the circumstances, and whatever may be the further outcome, they have at least set a good example to more settled communities.



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You cannot afford to Guess at such important matters as the Speed of Mill Machinery, when the BOWSHER SPEED OR MOTION INDICATOR can be obtained at a trifling cost when compared to its usefulness. It is one of the most useful and profitable devices ever put in a mill. It will pay for itself every thirty days in dollars and cents, aside from its invaluable convenience to the miller. Requires no care, and will last a lifetime.

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Advertisements under this head, 25 cents each insertion for 25 words, and 1 1/2 cents for each additional word. Cash with order. Three consecutive insertions will be given for the price of two.

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Situation as second miller, in a roller mill. Will go anywhere not outside the limits of civilization. References will be furnished upon application. Address B. 78, care THE MILLING WORLD, Buffalo, N. Y.

SITUATION WANTED.

In a custom grist or flouring mill by a man who has had about two and one-half years' experience as a miller, and can furnish best of references. Address, T. H. NICHOLAS, Forestville, Chautauqua County, N. Y.

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Advertisements of Mills for Sale or Rent, Partners Wanted, Machines for Sale or Exchange, etc., etc., cost 1 1/2 cents per word for one insertion, or 4 cents per word for four insertions. No order taken for less than 50 cents for one insertion, or \$1 for four insertions. Cash must accompany the order. When replies are ordered sent care of this office, 10 cents must be added to pay postage.

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A good practical miller to run a small custom and merchant mill, rolls and stone. Must be willing to work. Wages \$50 per month and house. Address, ESPENHAIN & ROY, Lyons, N. Y.

WANTED IMMEDIATELY.

One Knox finisher to run with the sun. Must be as good as new. With perforated sheet steel scourer. Give lowest cash price. Address P. H. RAUCH & BRO., Kelly Cross Roads, Union county, Pa.

FOR SALE.

The Daggett Hollow Mills. Steam and water power. Four run stone. Rebuilt 1883. Sixty-two acres land. Good buildings and fruit. For particulars address G. W. EIGHMEY, Daggett Mills, Tioga county, Pa.

WATER POWER CUSTOM MILL FOR SALE.

Four run burrs; low dam; 20 feet head; good location, near Troy, N. Y., doing paying business which can be readily enlarged. An old established and very desirable property, on easy terms; possession any time. No postals, but to any one meaning business call upon or address J. EVANS, Schaghticoke, N. Y.

FOR SALE CHEAP.

One 6-horse power engine and 10-horse power boiler, all complete, price, \$350; one 8-horse power engine and 10-horse power boiler, price, \$375; one 10-horse power Portable complete, price, \$350; one 10-horse power Russell Traction, price, \$500; one 4-horse power vertical engine, price, \$120. Call or address for particulars EZRA F. LANDIS, Lancaster, Pa.

MILL FOR SALE CHEAP.

Situated in the town of East Bloomfield, Ontario Co., N. Y. Mill has 3 run stone and all machinery for doing first class custom and merchant work. There is eight acres of land. Good house, barn and plenty of fruit, the mill is driven by spring stream that never fails. Situated 1/2 mile from depot. Reasons for selling ill health. Those wishing to buy mill property would do well to see this. BURRELL BROS., East Bloomfield, N. Y.

YOU CAN BUY THESE CHEAP.

1400 4x8 elevator cups. } made by W. P. Myer,
1800 4x8 1/2 " } of Indianapolis, Ind.
One No. 8 Excelsior Centrifugal reel.
One " 1 J. T. Walter Middlings Purifier.
One " 2
Four McCully Corn Cob Crushers.
Each of the above articles is brand new, in perfect condition, just as they left the factories, never having been unboxed, and will be sold very cheap for cash, the owner having changed his plans, has no use for them. Address S., 30 care THE MILLING WORLD, Buffalo, N. Y.

VALUABLE MILL PROPERTY.

Roxbury Mill, on Antietam River, for Rent or for Sale on easy terms. This property comprises a most desirable flouring mill in complete order with three run of burrs, excellent and never-failing water power, 23 acres rich land, good two-story dwelling house, situated one mile northeast of Brehedsville, on Washington County railroad, and five miles southeast of Hagerstown, and on the road leading from the Hagerstown and Sharpsburg pike to the Hagerstown and Boonsboro pike, in as fine and healthy agricultural district as can be found. A full supply of wheat can always be had by wagons, direct from farmers in the neighborhood. The mill has always had local custom for all the mill feed and much of the flour made. For terms, &c., apply to GEO. T. GAMBRILL & CO., Baltimore, Md., or F. F. McCOMOS, Attorney, Hagerstown, Md.

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Parties desiring to sell, buy, or lease mill property should not fail to write us. Our List covers various sections of country, and we have mills at all prices, and can offer some decided Bargains in the West.

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GOVERNORS { For Water Wheels } Cohoes Iron Foundry and Mch. Co. Send for Catalogue. Cohoes, N. Y.

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The Simplicity so long sought after in Roller Mills attained at last.

ONE, TWO, OR FOUR BREAKS IN A SINGLE FRAME

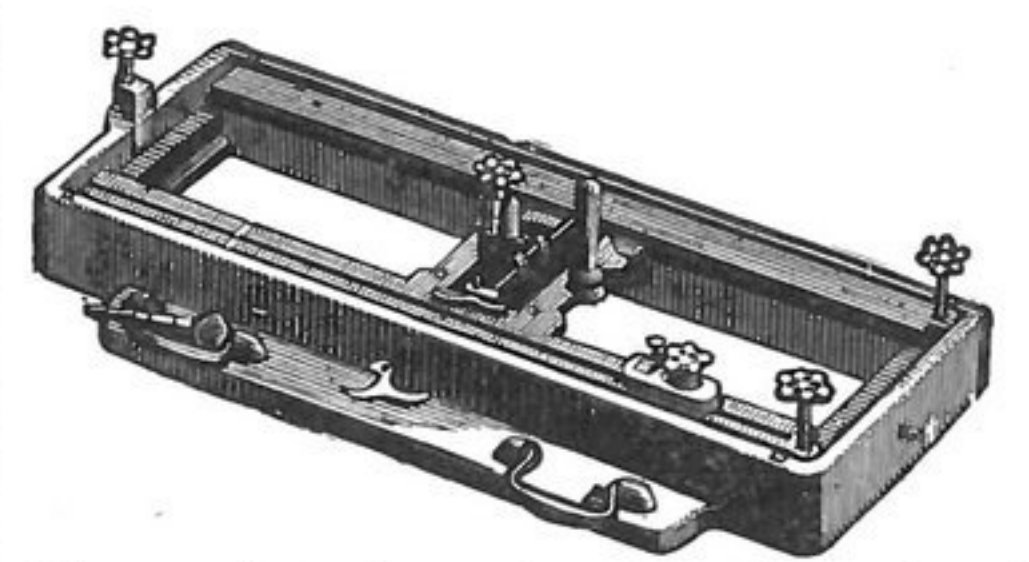
SIZES OF ROLLS 9x18 and 7x14 INCHES.

NO CROSS BELTS. NO FRICTION. NO LOSS OF POWER.

Reduction Rolls, Bolting Cloth, Purifiers, Middlings Mills and Bolting Chests. General Mill Furnishing Supplies.

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TEETOR'S QUICK ADJUSTABLE Diamond Millstone Dressers.



No screw feed. A new invention. Automatic rod feed. The only perfect, practical feed ever invented for a millstone dresser. A revolution. No ratchet wheel, springs, pauls and levers to contend with. Can cut over 1,000 cuts per inch right or left, reversed with the tip of one finger, while in motion. Feed can instantly be regulated to cut fine or coarse with one hand while the carriage is operated with the other, by the use of this rod feed can push the cross head right or left for quick operation. Self reversing when pushed to either side of carriage. A machine of special merits, is specially adapted for deep facing, as the feed can instantly be regulated to protect the diamond point, therefore need not raise the diamond on account of a slight raise. No extra attachment required to furrow. No change to be made on the cross head. All regulations or adjustments are made without the use of a tool to crack, face or furrow right or left hand burrs. Is warranted as represented, and is specially guaranteed to be more easily operated and quickly adjusted than any of its class, is convenient to set over spindles as machines are ample wide. Also a new improved patent diamond holder, the only perfect one. Other good improvements not mentioned. Sold on trial to responsible parties. Prices reasonable. Send for circular giving full description. C. A. BERTSCH, Sole Manufacturer, Cambridge City, Ind.

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LOUIS S. CRANDALL
MANUFACTURER OF
FINEST QUALITY OLD STOCK
FRENCH BURRS
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GOLD MEDAL—SPECIAL, 1ST ORDER OF MERIT.



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Picks will be sent on 30 or 60 days' trial to any responsible Miller in the United States or Canada, and if not superior in every respect to any other country, there will be no charge, and I will pay all express charges to and from Chicago. All my picks are made of a special steel, which is manufactured expressly for me at Sheffield, England. My customers can thus be assured of a good article, and share with me the profits of direct importation. References furnished from every State and Territory in the United States and Canada.



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Office, Lewis Block, cor. Washington and Swan Streets.
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MR. THOMAS McFAUL is the authorized agent and traveling correspondent for this paper.

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In the United States and Canada, postage prepaid, \$1.50 Per Year, in advance; can be remitted by Postal order, registered letter, or New York Exchange. If currency is enclosed in unregistered letter, it must be at sender's risk.

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Card of Rates sent promptly on application. Orders for new advertisements should reach this office on Tuesday morning, to insure insertion in the week's issue. Changes for current advertisements should be sent so as to reach this office Saturdays.

EDITOR'S ANNOUNCEMENT.

Correspondence is invited from millers and millwrights on any subject pertaining to any branch of milling or the grain and flour trade.

Correspondents must give their full name and address, not necessarily for publication, but as a guarantee of good faith.

This paper has no connection with any manufacturing or mill furnishing business. Its editorial opinions cannot and will not be influenced by a bestowal or refusal of patronage. It has nothing for sale, but its space to advertisers and itself to subscribers.

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WITH the season of fire works again approaching, it may be well to remind our readers that the so-called "serpents eggs" contain one grain of sulpho cyanogen each, a quantity fully sufficient to poison a child if it should swallow one.

It is reported that the attempt to corner whiskey, or to limit its production has failed. Whiskey and conventions, when united, form a formidable power. Difficult to control or limit when taken separately, they laugh to scorn all efforts in a similar direction when combined. This year they are combined.

If the discoveries of coal in Colorado and Dakota prove true, the fuel question in some of the Western and Northwestern States may receive a satisfactory solution. THE MILLING WORLD has before this called attention to this point and urged the necessity of State surveys to learn what can be found under the surface in the respective districts.

BURNHAM BROS., successors to N. F. Burnham, York Pa., have just issued a very handsomely gotten up descriptive catalogue of their well known Standard turbine water wheel. The illustrations are of a high order of merit, the descriptions clear and explicit, and parties who may contemplate putting in water wheels, or changes in or additions to their present water power will be advantaged by securing a copy, which can be had upon application, as above.

MILLERS' NATIONAL ASSOCIATION.
SECRETARY'S OFFICE.
MILWAUKEE, WIS., May 28, 1884.

Editor Milling World: The annual meeting of the Millers' National Association which was to have convened at Chicago in June, is by order of the President and Sub-Executive Committee postponed to December next.

S. H. SEAMANS, Sec'y.

Considering all the circumstances it is, perhaps, as well to postpone the annual meeting, yet there is that Bran Packer premium,

and the Gilbert patent matter that would seem of sufficient importance to warrant a convention this month.

WE have received from The Jno. T. Noye Mfg. Co., of this city, a copy of their new circular descriptive of the Rounds Sectional Roller Mill. It is worthy of more than passing notice for the reason that it is fully descriptive of the Rounds mill in its various forms, besides giving, in detail, the outfit necessary for mills of various capacities, and answers all questions, except as to cost, which the miller would ordinarily ask. Copies can be had upon application to the company.

WITH the recent wholesale discussions about the "pauper labor" of Europe still fresh in our memory, it is interesting to hear a European report about "cheap Yankee labor" as a comparison. We are told, for instance, that at a recent meeting of the Balloon Society of England a discussion was held about the watch trade, and in the presence of the greatest experts of the clock industry, it was declared that the "cheap American and Swiss watches" were ruining the English trade. It was considered necessary to petition the government for the appointment of a commissioner whose duty it shall be to report upon a plan or means by which the suffering watch trade of England can be restored.

DESPITE the quantity of political gush now pervading the average newspaper columns, there is strongly apparent an apathy upon the part of the average citizen as to whom shall carry off the nomination for President at the republican convention now in session at Chicago. This apparent lack of interest simply indicates that there is slight, if any, probability of any question being brought before the people for decision at the approaching election, which would materially affect our commercial, monetary or mercantile interest. Indications all strongly point to the coming elections as simple party strife for power, and it is doubtful if even ordinary excitement will attend the struggle. It is a pretty good sign of stability when an approaching presidential election is calmly looked upon as an event to be expected but not worried about.

ASIDE from its value as regards electrical science, the forthcoming International Electrical Exhibition at Philadelphia will be of a special interest to all consumers of steam power, because a series of quantitative tests for steam engines are proposed to be held in connection with it under the auspices of the Franklin Institute. All exhibitors of such steam engines desiring quantitative tests made must hand in their applications before July 15. If two or more parties are desirous of comparing the values of their respective engines, competitive tests will be made. Now here is something exceedingly practical and of great interest to many. The average consumer of steam has seldom an opportunity to test the efficiency of an engine before purchase, and has to rely, in most cases, on the reputation of the manufacturer, or is misled by advertisements. Reports of the efficiency of steam engines, tested and examined by a committee of experts of the Franklin Institute, will confer a reliability on the manufacturer's announcements, which cannot be gainsaid, and will tend to inspire a confidence in his products not easily shaken. It is to be hoped that every manufacturer of steam engines will avail himself of this opportunity to obtain a golden opinion for his establishment and let steam consumers know which engines are proportionally the most economical.

EVERY profession and trade has its special dull time during certain parts of the

year. Papers are no exception to this general rule and at times the news items are not forthcoming as plentifully and as lively as the editors desire. Then recourse is had to the imaginary. One of these imaginary stories dished up periodically in daily, weekly and monthly papers is that of the "sea serpent." Although it has been refuted and ridiculed as often as published, it always finds its way into print again in a different dress. Another of these bugbears is of more southern origin; the horned hoop snake has attracted almost as much attention as the sea serpent, but strange to say, neither of the two has ever been caught. The hoop snake, we are told, has a horny spike at the end of its tail; it twists head and tail together like a barrel hoop and rolls after its prey, striking it with the spike and thereby killing it. Unfortunately, so the stories run, such snakes sometimes miss their aim and having attained too high a velocity to stop in time, they roll against a tree or log with a force sufficient to drive their spike as much as an inch into the solid wood. Unable to extract it again, they are doomed to death. Now if any of the readers of THE MILLING WORLD want to hand their name down to posterity in scientific records, let them catch such a horned hoop snake dead or alive, because from correspondence carried on about the subject, we know that there is not a museum or institution of learning in the United States which has a specimen of this snake in its possession, and, stranger yet, no naturalist has ever seen one, and every man of scientific attainments denies the existence of this monster as much as the existence of the sea serpent. Of course, the man who can show an actual specimen, will be praised as the discoverer of a new specimen of zoology in scientific literature, may have the honor of seeing the snake named after him, and have his name thus perpetuated in a manner more lasting than can be obtained from coat-of-arms or title of nobility. We very respectfully invite correspondence on the subject from those who have heard about the famous hoop snake.

THE abolition of the tolls on the Canadian canals, as advocated by a number of the merchants of the Dominion, does not meet with universal favor throughout Canada. If we remember that the abolition of the tolls on the Erie canal met with an immense amount of opposition by those people of New York State who were not directly connected with or interested in that great artificial waterway, and who were unable to comprehend that in the present state of commerce, the improvement of such a line of communication is felt all over the State, we cannot feel surprised that our Canadian neighbors are subjected to a similar experience. Says the *Monetary Times* of Toronto: "The abolition of the tolls would be a great advantage to the Americans. It would enable the American farmer to send his produce to the seaboard through Canadian canals free. He is a competitor against our agriculturists in the markets of Europe; and if we pay his tolls, for somebody must pay them in some form or other, he can afford to sell his produce so much cheaper, and to press us the more severely by his competition. If we are to have a new reciprocity with the United States, the freedom of our canals would be one of the most valuable things we could have to offer. To give away the privileges without compensation, would be an act of folly." It is a serious question with us whether New York State would be what it is to-day, if its people had argued in a similar way sixty years ago, and had said: Why shall we, at our expense, build and maintain the Erie canal simply to allow western grains to be sent to the seaboard at cheap rates, and enable the grain grower of the west to

compete with us at a disadvantage to ourselves? Improved navigation means increased commerce, and not one vessel will pass through the Canadian canals, even if the tolls are abolished, from which no interest whatever is derived by the inhabitants along the route in some one or the other way, in the line of provisions, outfit, repairs, etc., etc., and the advantage, instead of being entirely on the side of the American farmer, may finally prove to be on the other side. But we generally find one-sided views in relation to trade, and this is no exception.

IN a long article on "Hard Times Ahead," Mr. Frank Wilkeson tries to demonstrate in the New York *Sun* that "eighty cent wheat" means national poverty, corporate bankruptcy and wide-spread individual distress. The whole article is written to make political capital, but it still contains very sensible suggestions and demonstrates a close acquaintance with the subject under discussion, but when the gentleman tries to represent the coming rich harvest prospect as "symbolical, not of wealth and prosperity, but of poverty and financial disaster such as the world has never witnessed," we beg leave to dissent slightly. If our national wealth depended upon the export of breadstuffs exclusively, then the prospect of eighty or even seventy cent grain may be ruinous, but in 1882 the exports of agricultural products amounted only to 14.69 per cent. of the total exportation; the rest, 85.31 per cent. was consumed at home. Such figures speak volumes in themselves. Of course, we all know that decreased transportation expenses would greatly facilitate the export business, and, no doubt, the charges will be reduced in time, as soon as the necessity for it becomes apparent to the people; such things cannot be forced, but are of slow growth, if intended to endure. In a republic, like the United States, legislation, in order to be efficient, must be the representation of the opinion of at least an intelligent minority, otherwise the application of laws to problems of political economy generally prove disastrous. The statement that the wheat corners of Chicago have aided in the cultivation of the wheat fields of India, also permits of several interpretations. It is unnatural to suppose that any country, no matter which one, cares to depend exclusively upon another country for certain necessities of life, especially breadstuffs. It is equally unnatural and a poor compliment to the English, to suppose that it needed Chicago wheat corners to make them feel the necessity for another source to supply their deficiency in grain. Contrary, it was the natural outcrop of that spirit of independence, hastened perhaps, but not born, by speculations in America. The wheat fields of India would have been developed even without our far famed wheat corners, or anything else that American speculators could have devised. There certainly does not seem to be any immediate danger that intelligent wheat farming should prove a pecuniary failure, or that a rich harvest should mean a national disaster. But if the supply should ever exceed the demand for any length of time, a regulation will take place by itself. No farmer will care to cultivate wheat which does not pay, when he can raise other crops that do pay: consequently if the wheat prices decline to figures too low to make its cultivation profitable, the agriculturist will abandon its cultivation, and turn his land and labor into more profitable channels. Instead of the *Sun's* prediction "hard times are coming," we are inclined to take a hopeful view of the present situation, even if it only tended to demonstrate clearly at what cost wheat could be produced in the United States.

ESTABLISHED 1856.

EUREKA GRAIN CLEANING MACHINERY | GENUINE DUFOUR BOLTING CLOTH**OVER 18,000 MACHINES IN USE.**

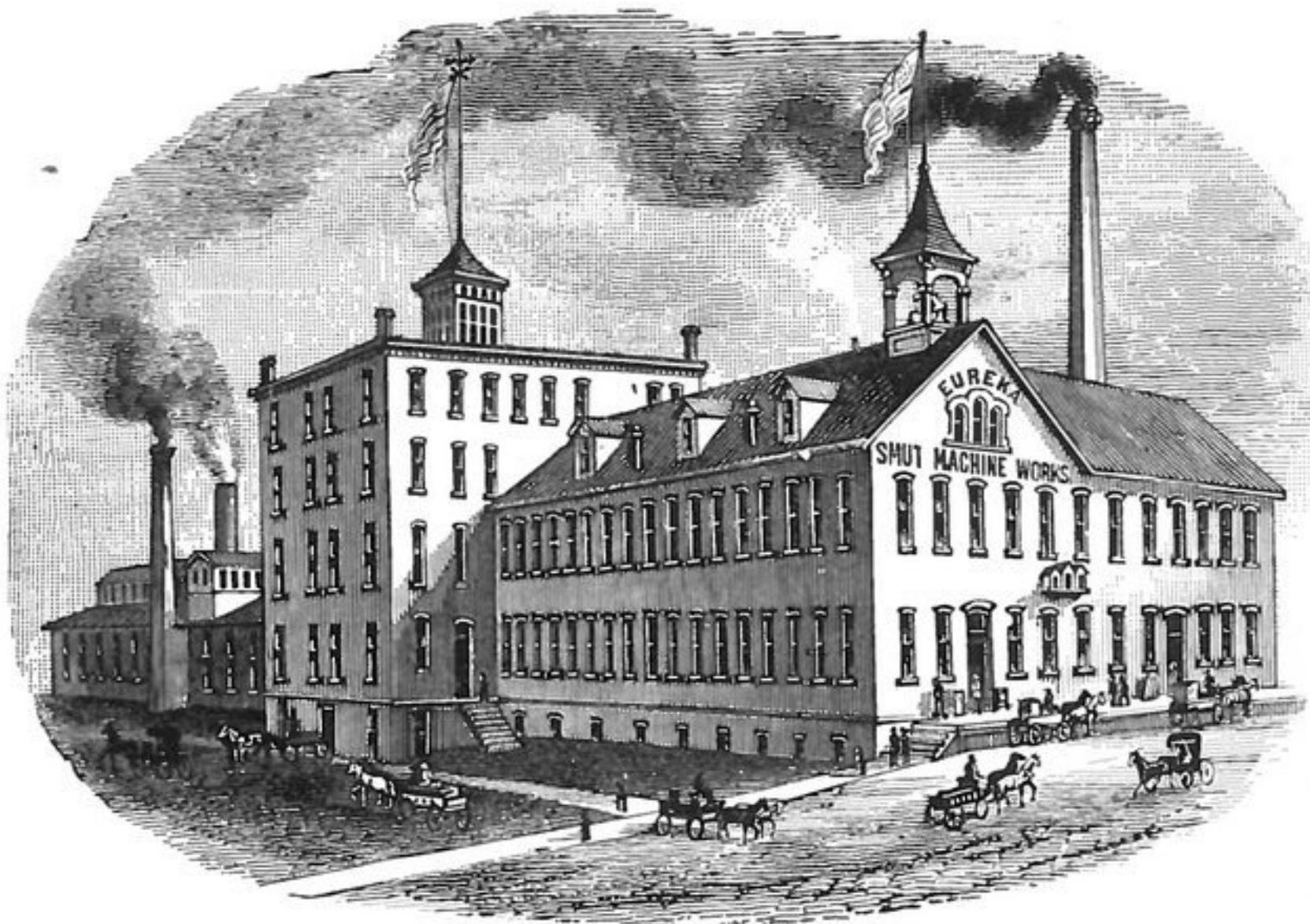
OUR LINE COMPRISES

The Eureka Separator,
The Eureka Smutter and Separator,
Eureka Brush Finisher,
The Eureka Magnetic Automatic Separator,
Silver Creek Flour Packer.

Our establishment is the oldest, the largest and most perfectly equipped of its class in the world, and our machinery is known and used in every country where wheat is made into flour.

HOWES & EWELL,
SILVER CREEK, N. Y.

European Warehouse and Office: 16 Mark Lane, London, E. C. England.
Gen. Agency for Australian Colonies and New Zealand.
Thos. Tyson, Melbourne, Victoria.



We handle this justly celebrated cloth in large quantities, and can fill all orders upon receipt. For such as may prefer a cheaper grade, we offer our

ANCHOR BRAND BOLTING CLOTH.

Guaranteeing it to be equal in every particular to any other cloth on the market, except the Dufour. We have handled it for years, have sold thousands of yards of it, and know it will fully sustain our representations.

Send For Samples of Cloth, Our Style of Making Up, and Prices.

HOWES & EWELL,
SILVER CREEK, N. Y.

THE IMPROVED MORSE ELEVATOR BOLT

THE KNICKERBOCKER CO.

MILWAUKEE, WIS., March 20, 1884.

Gents: Your Bolt is working well and beats anything in the way of a Bolt, centrifugal or any other, that has yet been invented. As a general thing we do not like to certify to a thing on so short a notice, but your machine is an exception. We will experiment as we have opportunity and see how many more machines we can profitably use. Wishing you all success, we remain,

Your truly,

E. SANDERSON & CO.

THE KNICKERBOCKER CO.

JANESVILLE, WIS., April 9, 1884.

Gents: I am fully satisfied with your Morse Elevator Bolt, it is a wonderful machine, and is as far ahead of the old Bolting Chest of Reels as the roller process is ahead of stone milling. Enclosed find draft for the No. 1 sent me, please forward the two No. 1 Bolts bought of your agent, one is for bolting patent stock, and the other low grade stock.

Yours Truly,

C. W. HODSON.

THE KNICKERBOCKER CO.

CLEVELAND, OHIO, April 3, 1884.

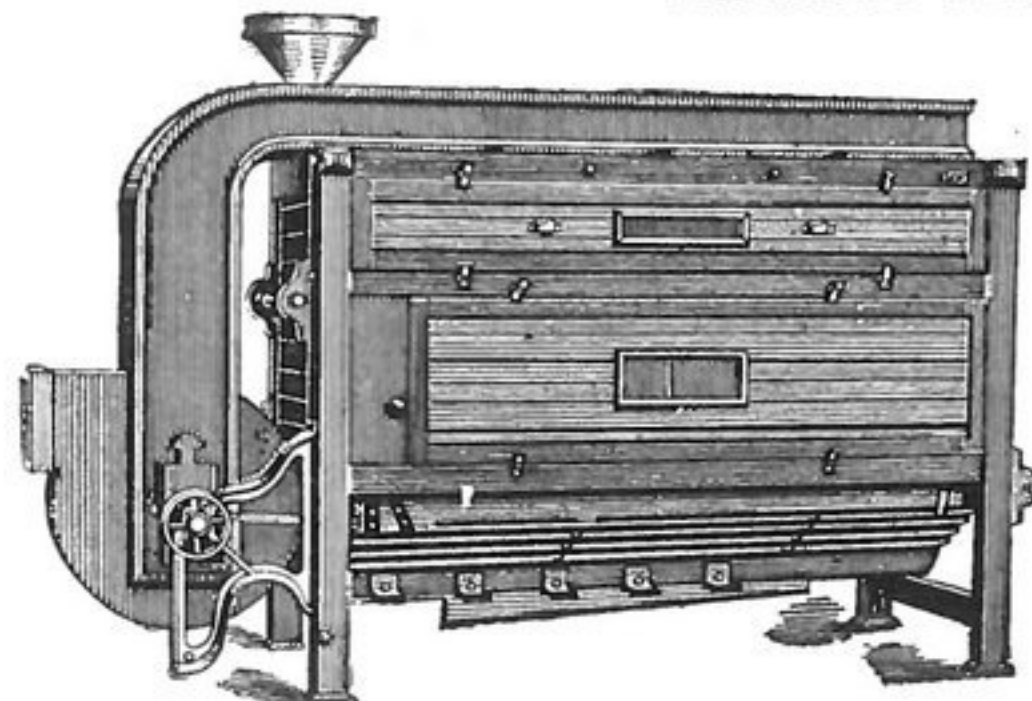
Dear Sirs: Regarding the Morse Bolt we cannot say enough in its praise. We have three different makes of Centrifugal Reels in our mill, and having given the Morse Bolt a fair trial alongside of them we can certify as to their merits. We have demonstrated the Morse Bolt will handle double the quantity the Centrifugal will and produce a better flour and cleaner finish. In fact any material in the mill can be handled with more economy and better results than upon any system we know of. The Morse Bolt being under the complete control of the operator is a point in its favor that cannot be over-estimated, and we believe when its merits are more widely known it will supercede the present mode of bolting.

Yours respectfully,

M. C. DOW & CO.

The Knickerbocker Co., Jackson, Mich.**WOLF & HAMAKER'S LATEST IMPROVED MIDLINGS PURIFIER AND DUST CATCHER**

The Only Machine with Two Sieves, for Fine and Coarse Middlings. The Only Machine with Balance Motion, Consequently no Jarring or Shaking.



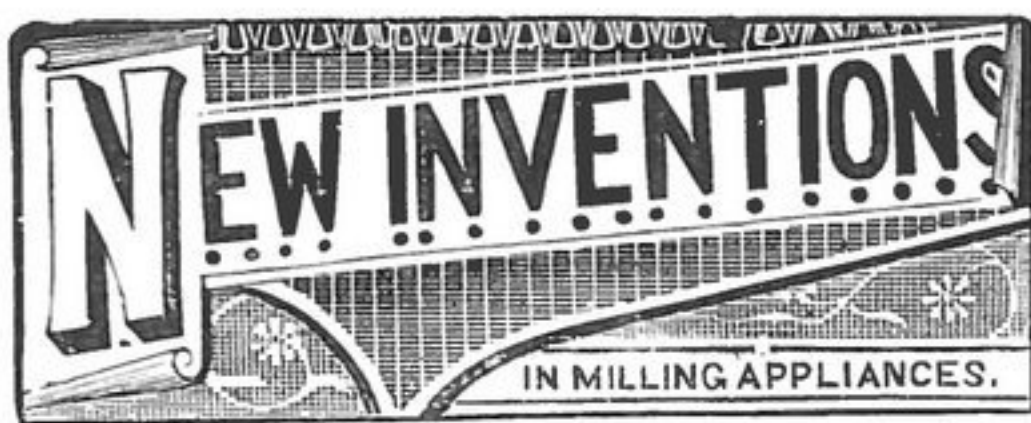
ADAPTED to all styles of milling, high or low grinding, as fine or coarse middlings can be treated separately on one machine. Economy in space, as the machine is a double one. A perfect cloth-cleaning device. No brushing or wearing of cloth. Licensed Under All Conflicting Patents. We are the Agents for the E. P. Allis Roller Mills, and Mill Builders and Contractors. We are at all times prepared to furnish plans and estimates, and to contract for the erection of first-class mills of any desired capacity from 50 to 500 barrels. Parties contemplating Roller Mills or remodeling old mills will find it to their interest to write for Prices and Terms. Wolf & Hamaker's Latest Improved Bolting Chest. Also Mill Furnishings of Every Description.

OUR DUST CATCHER IS GIVING THE BEST OF SATISFACTION, AND OUR PRICES ARE SUCH THAT EVERY MILLER SHOULD HAVE THEM.

WOLF & HAMAKER, ALLENTOWN, PA.

ON VIEW AT PERMANENT EXHIBITION OF MILL MACHINERY,
36 BROADWAY, NEWYORK.

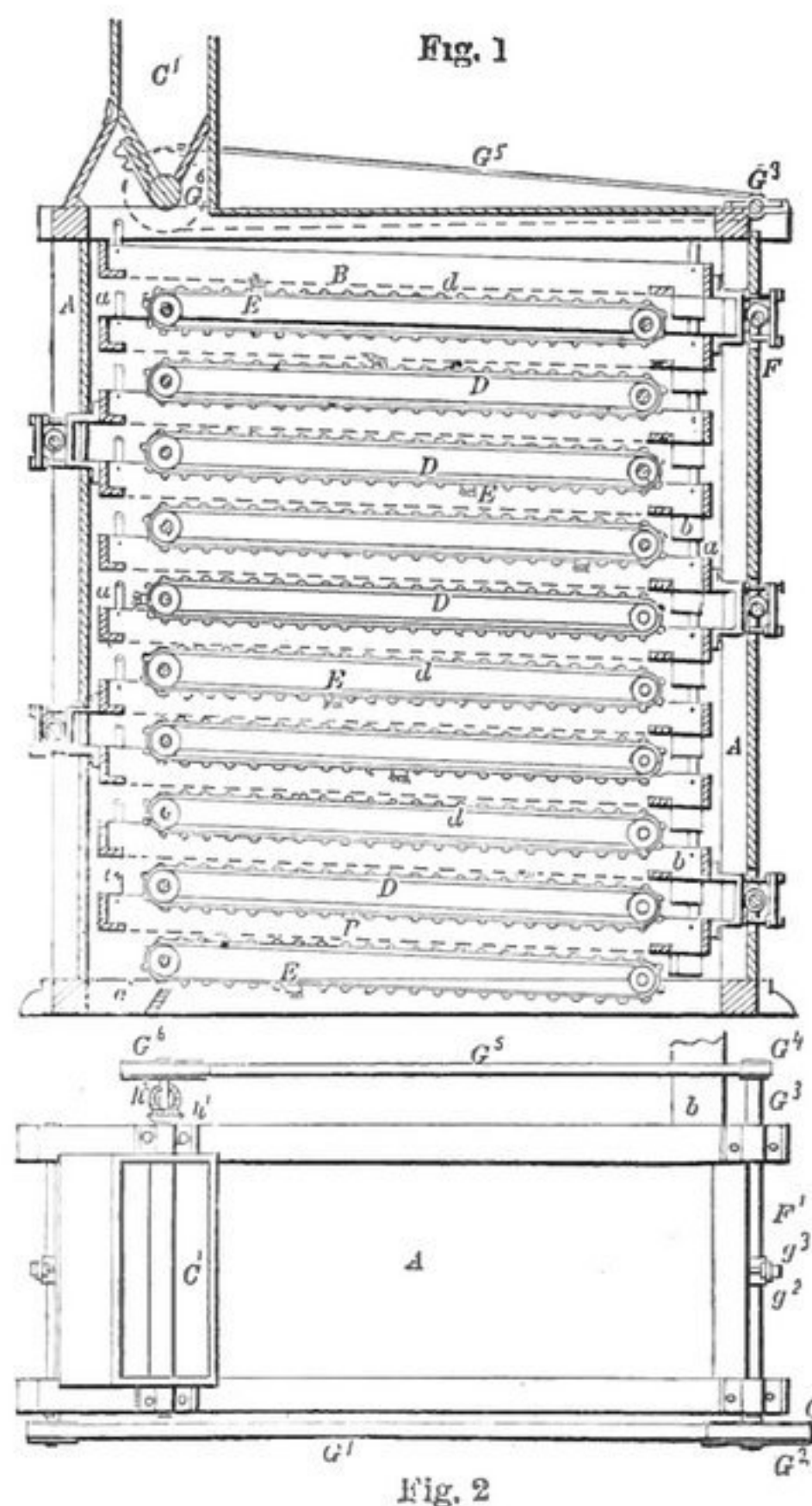




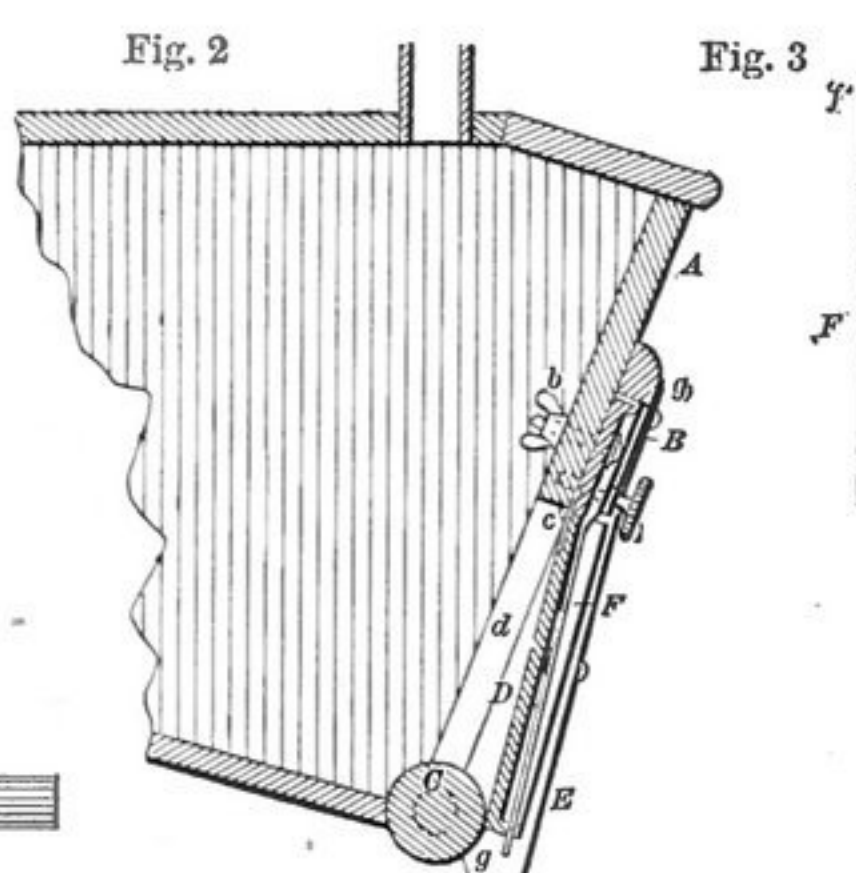
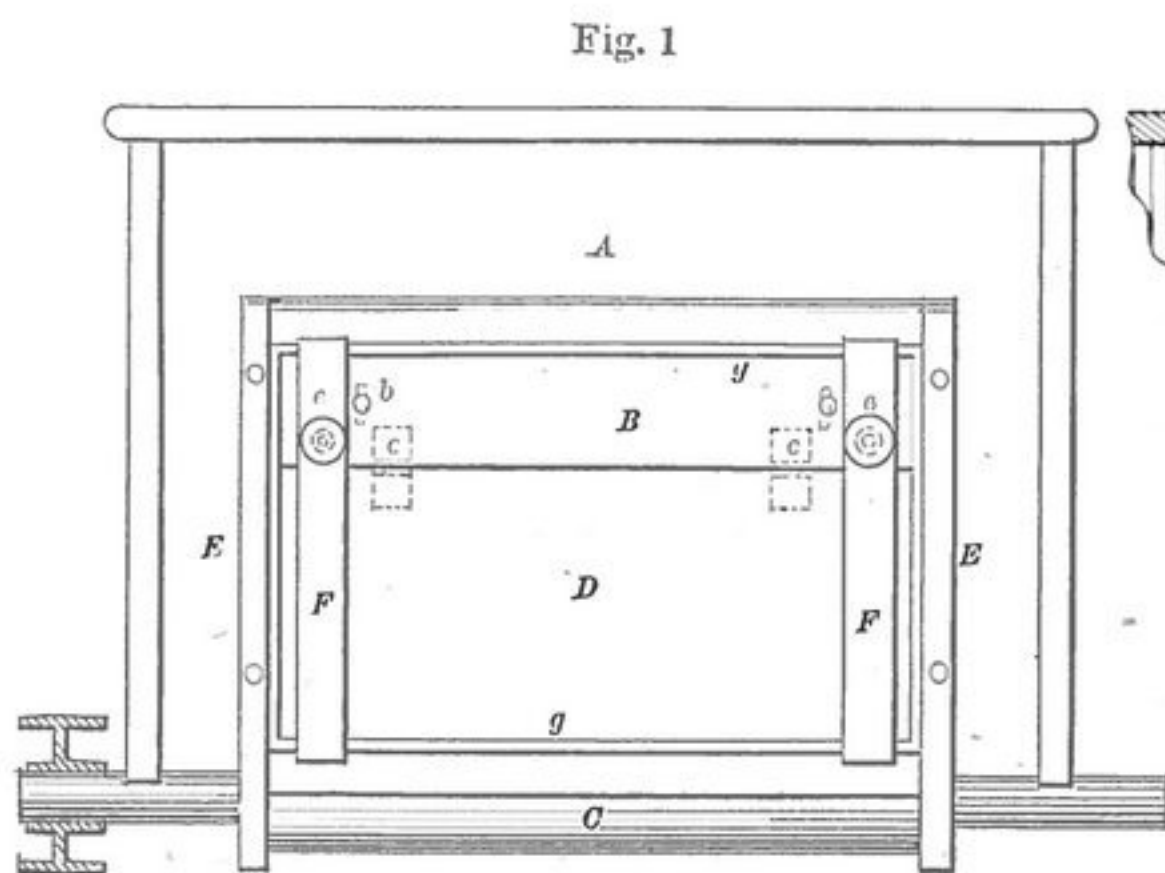
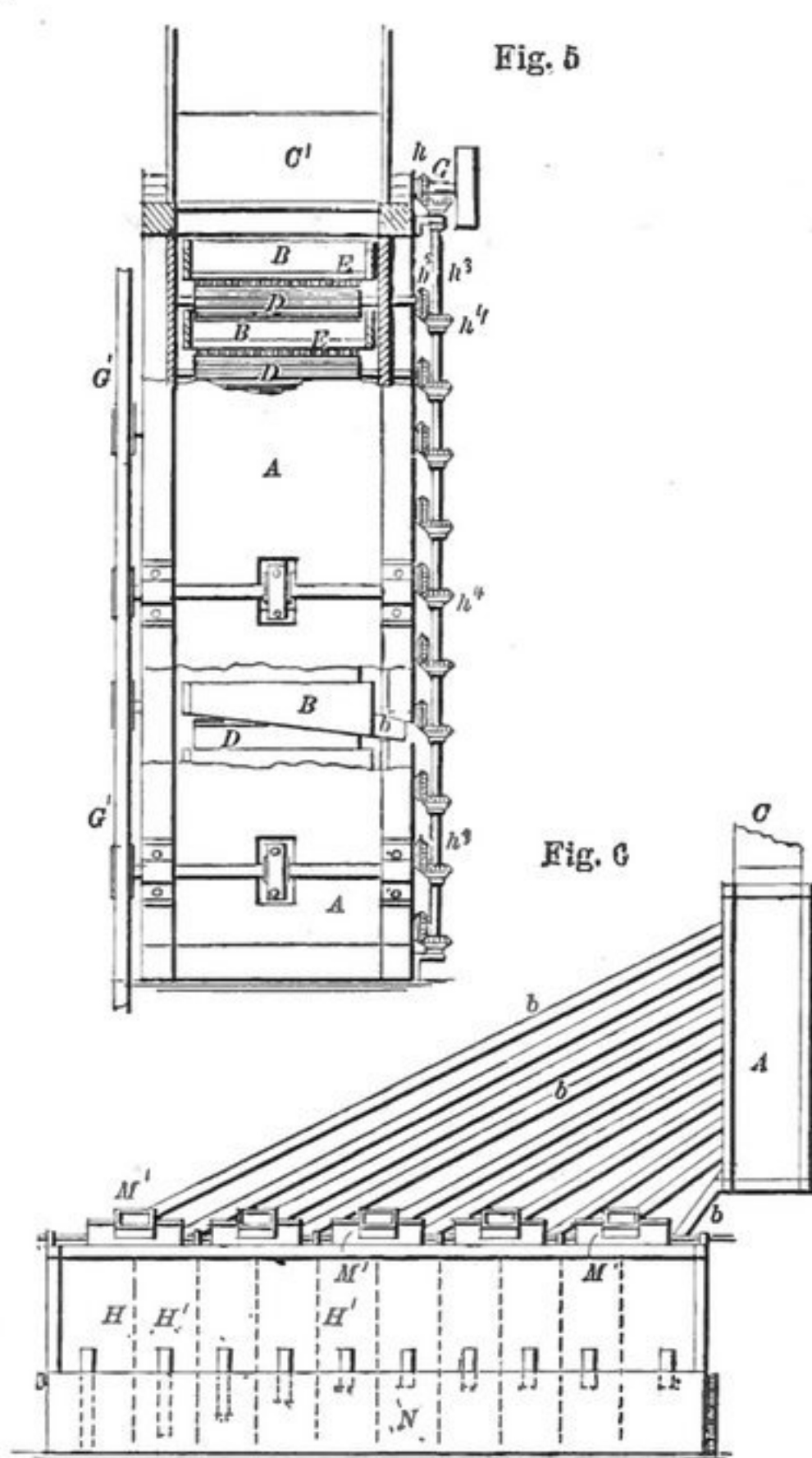
MACHINE FOR GRADING AND PURIFYING MIDDINGS.

Letters Patent No. 296,900, dated May 20, 1884, and issued to Joseph Martin Schutz, of Minneapolis, Minnesota. Of this invention Fig. 1 is a longitudinal sectional elevation, and Fig. 2 is a plan view. Fig. 5 is a rear end elevation of the grader, with portions broken out to show the interior arrangement of the mechanism. Fig. 6 is a view, reduced, of the grader and system of purifiers, showing their relative arrangements. In this machine the middlings are separated into grades, according to the size, by passing them over screens of bolting-cloth of different degrees of fineness, and without the use of artificial air-currents, and then the impurities are removed from each of said grades separately, by passing them over screens of ribbed metal and subjecting them to the action of artificial air-currents. In

screen will be clothed with No. 00 cloth, the second with No. 0 cloth, the third with No. 1 cloth, the fourth with No. 2 cloth, and so on, increasing in fineness from the top to the bottom. By this means the coarser grades are separated first and the finer grades separated last. The brushes serve to wipe the adhering dust loose from the cloth of the screens, and thus prevent clogging. Strips will be attached to the inside of the casing, to support the belts and prevent them sagging. The two upper screens will be connected together by a yoke or strap, to which is attached another strap, between which straps an eccentric on a shaft runs. This shaft is journaled across the end of the frame, by which means the screens may be vibrated. Each pair of the remaining screens is similarly vibrated, the eccentric shafts being arranged on opposite ends of the frame, and all driven by one single belt running np over an idler, on an idler-shaft on the frame A, and then alternately back and forth over pulleys on the eccentric-shafts. On the opposite end of the idler-shaft is a small pulley, from which a belt runs to the feed-roll shaft, by which the feed-roll is operated. Upon the outer end of this feed-roll shaft is a miter-gear, engaging with a similar miter-gear, on an upright shaft, journaled upon the side of the frame A.



MACHINE FOR GRADING AND PURIFYING MIDDINGS.



FEEDERS FOR MILLS, PURIFIERS, &C.

the drawings, A is the frame work of the grader, within which are suspended, one above the other, by hangers, a series of bolting cloth-covered screen-frames. C' is the feed-hopper, through which all the material entering the machine is fed to the upper screen. Each of these screens is provided with a spout, by which the "tailings" of each screen is removed from the machine separately and conveyed to a separate purifier. Beneath each screen is an endless traveling canvass or other suitable belt, each belt provided with a brush, and a series of parallel bars or strips. The screens are set with a downward slant toward their tail ends, so that the material will flow down them more easily, and the belts will be set parallel with them and revolved, so that their upper surfaces will move from the tail toward the head ends of the screens: hence all the material which falls through the bolting-cloth will be caught by the belts and deposited upon the head end of the next screen. The material which falls through the lower screen will be of such a fineness and comparatively pure quality, that it will be deposited in a hopper, and conveyed direct to the finishing rolls or stones. Ordinarily ten of these screens will be used, although a greater or less number may be used. The upper

Upon this shaft, opposite the head end of each of the shafts of the drums over which the belts D run, is a miter-gear, engaging with similar gear, on the shaft of said endless-belt drums. By this means all the endless belts D will be driven at once by the one shaft. At some point below the frame A is another frame divided by partitions, into as many separate compartments as there are screens, and in each of said compartments is suspended, upon hangers, a frame adapted to be vibrated by eccentrics or other means. The floor of these frames are formed of inclined sheet-metal plates, each plate formed with serrations crosswise of the frames, and with narrow openings between each pair of the plates. The serrations in the plates are of ratchet form, so that when the middlings are fed to the rapidly-vibrating frames, the long inclined edges of the serrations will slip beneath the middlings when the plates are moving in one direction, and the short upright front sides of the serrations will catch the middlings and carry them along at the return-stroke, thereby gradually moving them along the frame and causing them to fall from plate to plate. Above each alternate partition H² is a fan connected by ports with two compartments over which the fans sit, so that each

fan will exhaust the air from two compartments. Valves will be arranged in each port to regulate the force of the currents. By this means artificial air-currents are drawn up through the plates m, so that when the middlings fall over the edges of the plates in their progress along the frame, the lighter impurities will be removed therefrom and carried off through the fans, while the pure middlings only will pass over the tails of the frames. The tailings from each of the screens of the grader will be run to one of the frames K, so that each frame will be supplied with a separate grade of middlings. Across the tail end of the frame H' are a series of conveyors, into which the tailings from the frames will be run and conveyed away from the machine for further treatment in their reduction into flour. In the drawings the coarsest grade of middlings will be run from the screen to the lower conveyor, N, the second coarsest to the second conveyor, the third coarsest to the third conveyor, the fourth coarsest to the fourth conveyor, and all the remainder to the upper conveyor. The discharge-spouts will be arranged with suitable slides to vary this arrangement, if necessary.

FEEDER FOR MILLS, PURIFIERS, &c.

Letters Patent No. 298,938, dated May 20, 1884, and issued to William S. Bonnard and William H. Grupe, of Terre Haute, Ind. This invention relates to a hopper or other like feeding device provided with a feeding-roller applicable to mills, purifiers, and other apparatus or machines which require a steady or even feed spread over the entire length of the feed-roller, with provision for varying the quantity of material fed without interfering with the uniform distribution of the same, over the entire length of the feed-roller. It is applicable, among other purposes, to the feeding of substances of different specific gravities, from wheat to the lightest stock made in a mill. Figure 1 represents a front view of an adjustable automatic feeding-hopper embodying the invention. Fig. 2 is a vertical section of the same on the line x x in Fig. 1, and Fig. 3 is a side view of one of the valve-springs detached. A is the front of the hopper, and B a stationary piece or strip secured to the said front at a suitable distance from the top of the hopper by bolts and thumb-nuts. C is the feed-roller, arranged

along the bottom of the hopper in front. This roller, which may either be smooth or corrugated, may be driven by any suitable means. D is a swinging valve on the front of the hopper, pivoted or hinged above, over the opening in the front of the hopper, and arranged to extend below the center of the feed-roller. E E are two strips secured to the hopper-front at the sides of the valve, which serve to prevent lateral scattering of the material being fed, and between which the valve is free to swing. Arranged down and outside of the valve, parallel with the strips E E, are springs secured above, and having their free ends resting on a flange on the lower edge of the valve, whereby the said valve will be closed against the feed-roller. These springs have their tension regulated by thumb-screws applied to them, for the purpose of regulating the quantity of material fed over the feed-roller and to suit different substances being operated on without interfering with the uniform spread or distribution of the substance over the roller, with which the lower end of the valve is parallel, and extends the whole length of the roller between the strips or thereabout. The springs F F are thickened on their upper ends, and are constructed with grooves on the inner faces of such thickened portions, which grooves fit over or receive within them a longitudinal rib, on the upper portion of the front of the strip B, for the purpose of holding the springs to their places and to admit of their easy removal, when required. Such rib or flange may be extended down the ends of, and serve to stiffen, the strip B; and the valve as well as the strip, is made light, of cast-iron, and similarly stiffened on the marginal portions of its front by a flange; or said flanges may be restricted to the upper longitudinal portion of the strip B and to the lower longitudinal margin of the front of the valve parallel with the feed-roller, the flange serving to stiffen the lower portion of the valve and allow of it being planed true to fit the roller.

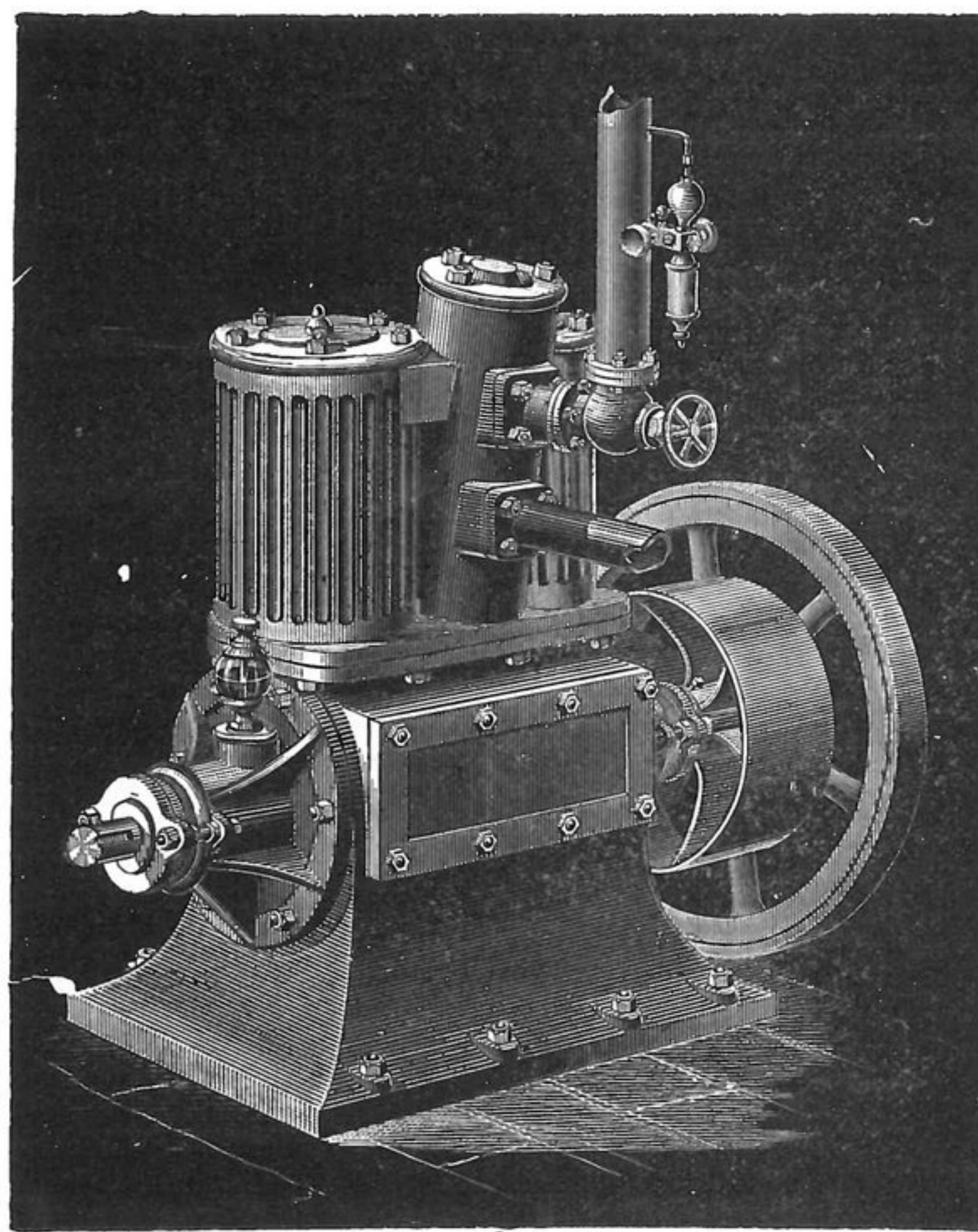
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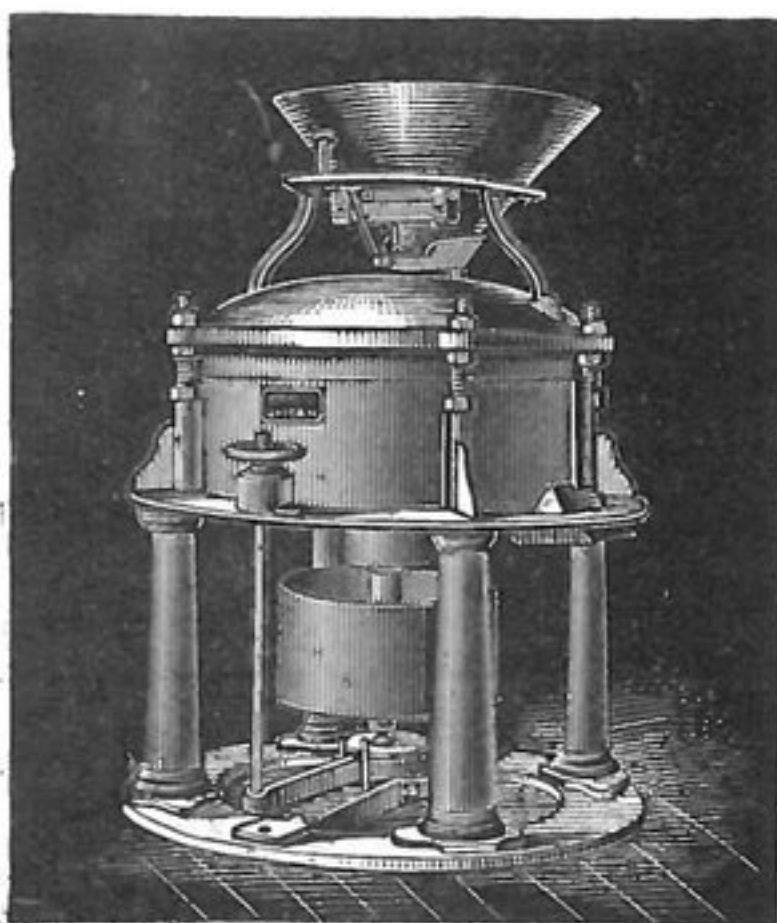
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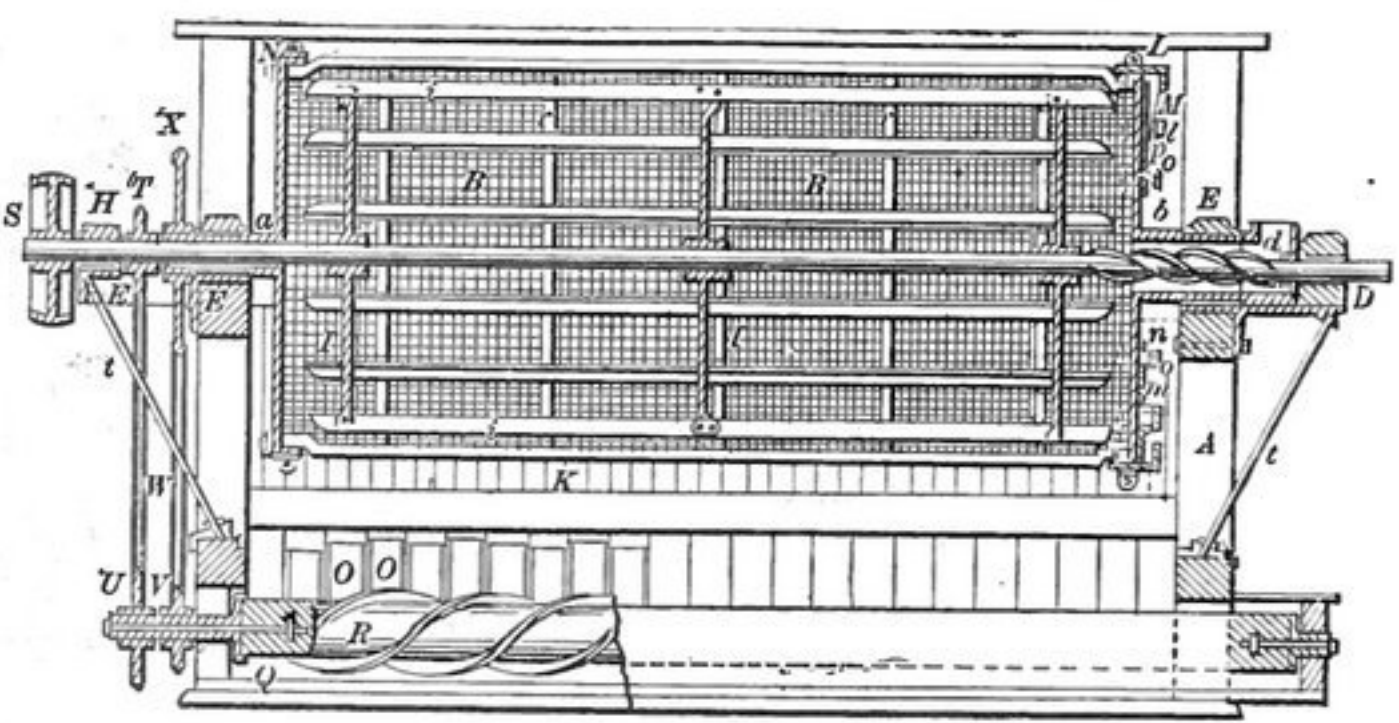
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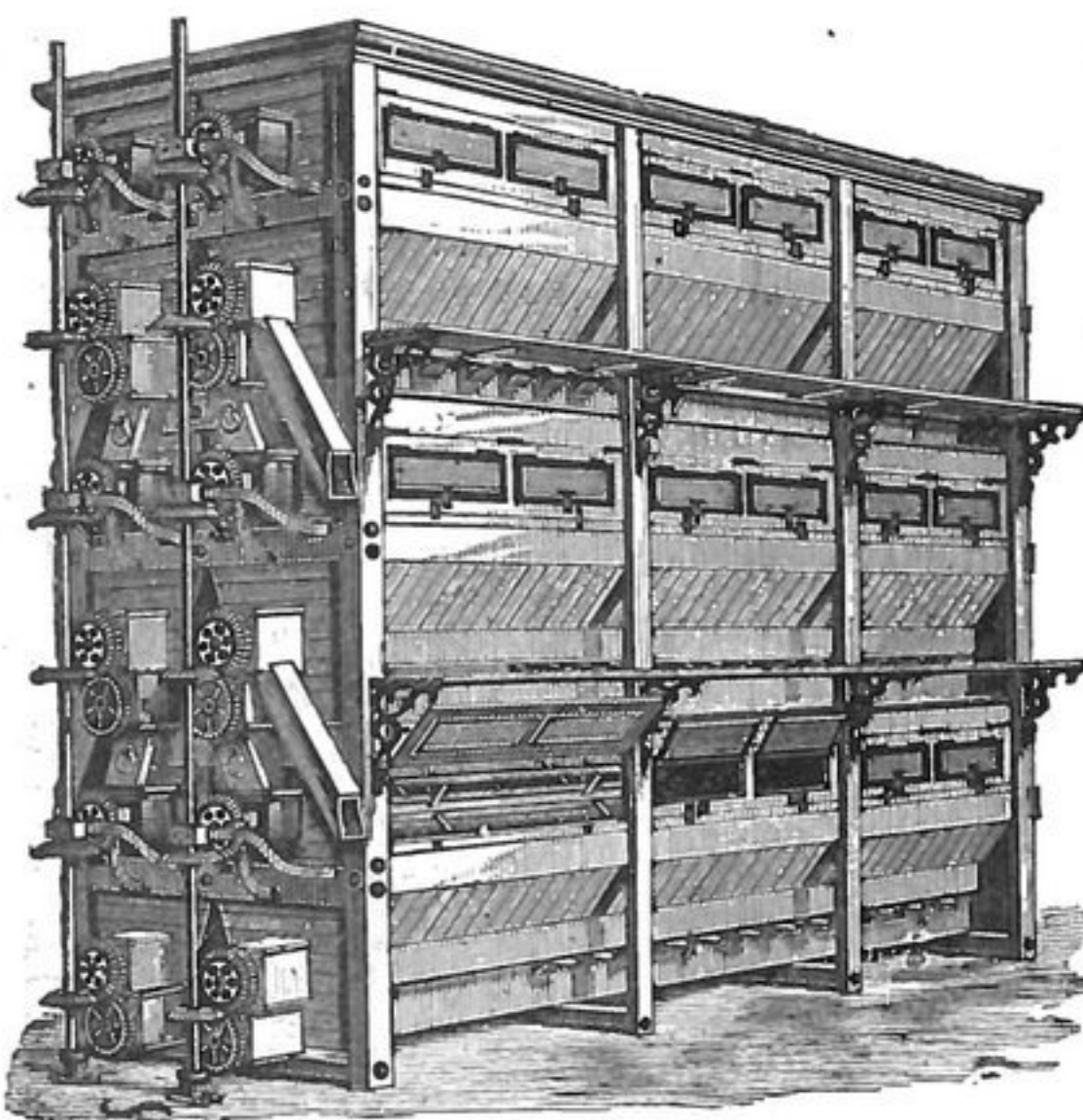


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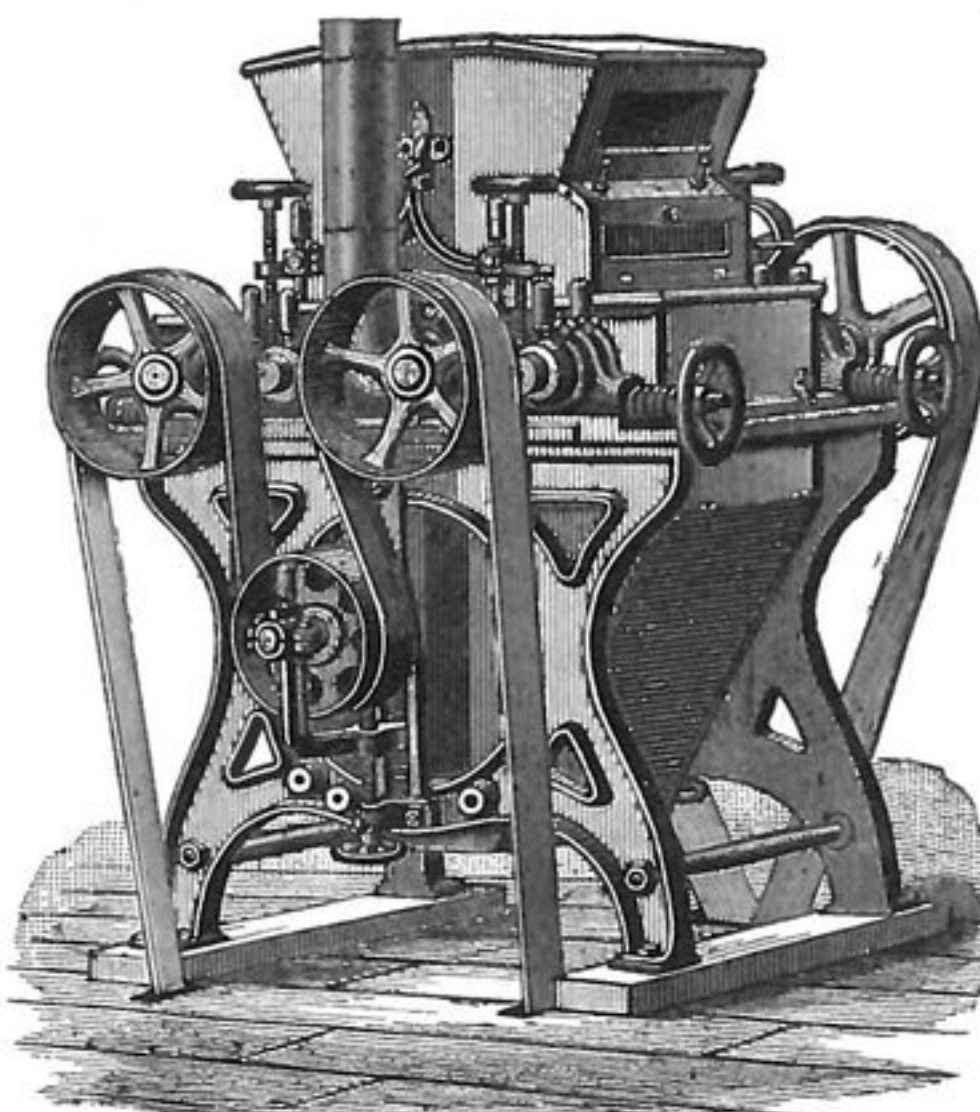
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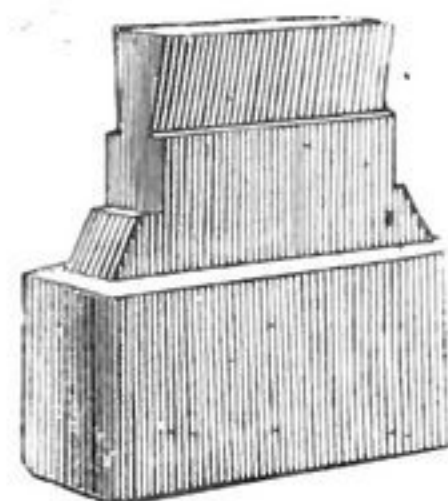
Eight inches long, 2½ inches wide, 1½ inches thick. Received the highest and only Award given to Polishers at the Millers' Exhibition, Cincinnati, Ohio, June, 1880.

For facing down high places on the buhr, this tool has no equal, and can be done much better and in one-sixth the time than with the mill pick. It is much larger, cuts better, can be used on either face or furrow; can be used until the corundum is entirely worn out on one side and then turned on the other side. Has over four times the amount of corundum and when the corundum is worn out can be replaced in the handle at a small cost. Sent by express, \$3.50. Satisfaction guaranteed, or money refunded. Address

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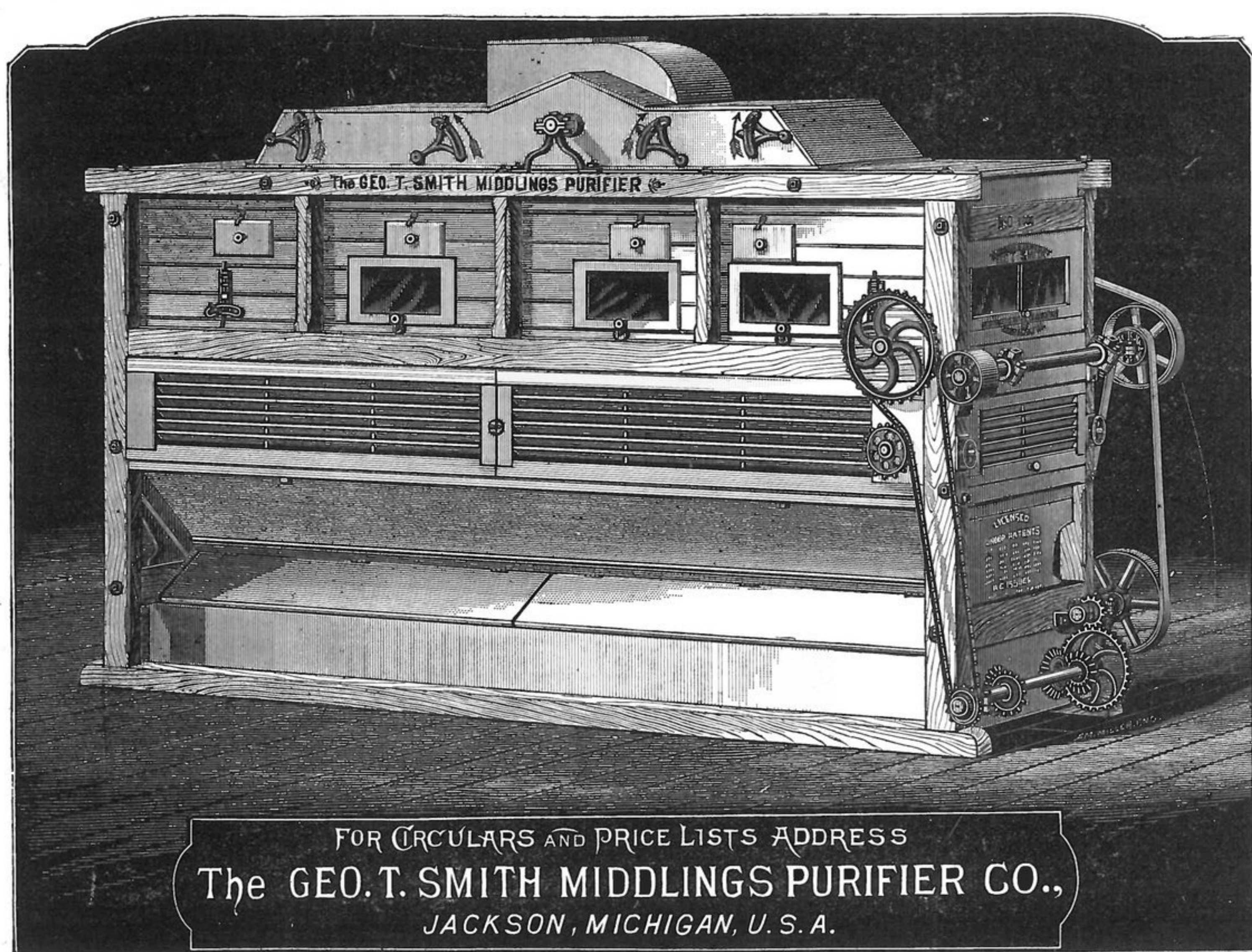
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THE PREVENTION OF INCRUSTATION.

WE clip the following from the annual report of the committee of management of the Manchester (England) Steam User's Association: Considerable attention has been given by the committee during the past year to the subject of incrustation. At the November meeting the chief engineer presented to the committee a manuscript report detailing what the association had done in the past to assist its members, and what it was still doing. For the prevention of incrustation it recommends very generally, on the authority of Dr. R. Angus Smith, confirmed by its own experience, the use of soda ash of good quality, advising that it should not be put into the boiler through the man hole in heavy charges at cleaning times, but that it should be pumped in along with the feed. It also recommends that blowing out of the boilers should be regularly maintained, and that they should not be emptied under steam pressure so as to be left hot and allow the scale to brake on and harden, but that they should be allowed to stand with water in them until cold, and then that the blow-out tap should be opened and the water allowed to run out by its own weight. These are simple remedies, and generally speaking, would do what is required.

* * As a testimony to efficient fire extinguishing apparatuses, the Providence Journal tells us the following: During the storm of Friday morning, May 9, which raged with great force at Greenville, lightning ran by the telephone wire to the Windsor Mill. There is no telephone in the mill, and the wire is disconnected just outside the building. The fluid was led by the wire to the corner of the mule and weaving rooms, and entered the building under the jet. It followed the water pipe and set the sprinklers going, (Brown automatic) and at the same time fired the stock in the mules. By this singular provision of an active extinguishing agent at the moment the fire started, serious loss was prevented, as the fire was soon drowned out. Mr. Arming-ton, the superintendent, sleeps in the mill, and he set the force pump at work, and rang the bell for help. Three persons responded, but the fire was under control when they arrived. Later investigation shows that many of the spindles in the mules have lost their temper, and some of the belts are burned. It will be several days before the mill can resume operations. This is the second mill belonging to the Vaughns that has been struck by lightning.

* * The French Ministry of Public Works published a formula for a hectograph or gelatine pad which is said to produce very satisfactory results. The composition consists of 100 parts of good, ordinary glue, 500 parts glycerine, 25 parts of finely powdered baric sulphate, or the same amount of kaolin, and 375 parts of water. For the copying a concentrated solution of Paris violet aniline is recommended. To remove the old copy from the pad, a little muriatic acid is added to the water, washing it gently with this liquid by means of a soft rag, afterwards using blotting paper for removing superfluous moisture.

* * According to the experiments of Messrs. Gilbert & Laws on the composition of the ashes of wheat grain and wheat straw, grown at different seasons of the year and on lands manured in different ways, the conclusions are that the season has a more decided influence upon the composition of

the ashes than the manuring, and that the composition of normal mature grain differs in a conspicuous manner only when one or the other ingredient is absent in the manure. The quantity of mineral matter in the straw is almost proportional to the abundance or absence of these matters in the soil.

* * Another popular belief has been stricken down by the scientific iconoclast. Who has not been advised for the sake of health, wealth, and happiness to rise with the lark, it being popularly supposed that that feathered musician is a very early bird? Mr. Elliott Coues, the Washington ornithologist, says the lark, instead of being an early riser, is one of the laziest members of the bird kingdom, seldom getting out of bed until hours after other birds have been up and gone off to business.

* * The city of Brussels means to try the experiment of using electricity to drive its street cars in good earnest. One line—that of the Rue de la Roi—is to be equipped with motors, and separate accounts to be kept, in order to ascertain definitely, the cost of the running. The test is to last for one entire year, and then, should the result warrant it, electricity will be employed exclusively on the street railways of Brussels.

* * The members of the Mississippi river commission were before the committee on rivers and harbors, recently, and Gen. Comstock said that he regarded the improvements going on, at an expense of \$2,000,000, as somewhat experimental, but he was hopeful. The other members, however, disagreed with him, and were of the opinion that the work had passed the experimental stage.

* * Small fly-wheels, cast hollow and loaded with lead, is a foreign notion that promises to become popular in this country. They afford the same centrifugal power as the large wheel, cost less, and take up less room.

* * It is estimated that the salt fields of Western New York will this year produce 900,000 barrels of the best salt manufactured, and that the production will be doubled the following year.

* * There are at present twenty-seven vessels engaged in different parts of the world in laying new telegraph cables, and in repairing old ones.

* * Since 1868 over 85,000,000 young shad have been hatched by the New York fish commission.

* * It takes 250 bushels of ordinary potatoes to produce one ton of starch.

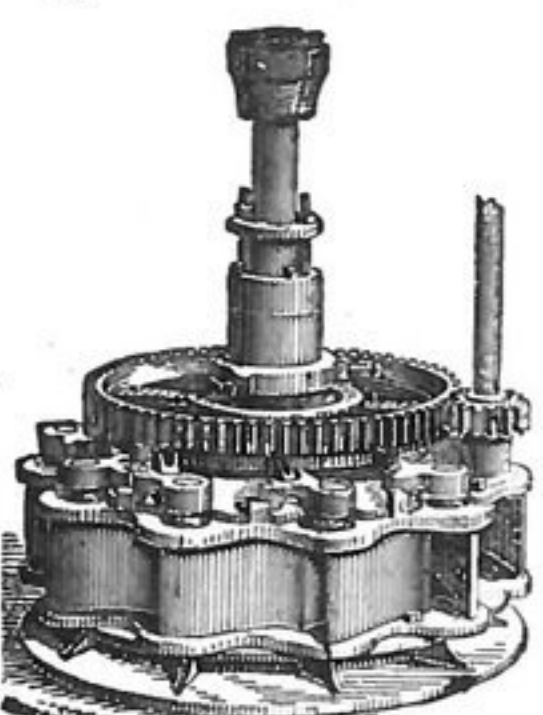
* * The electric light is now used in four churches in Montreal.

* * The latest use of paper is the making of spokes for wheels.

* * Platinum wire has been drawn so fine as to be absolutely invisible to the naked eye.

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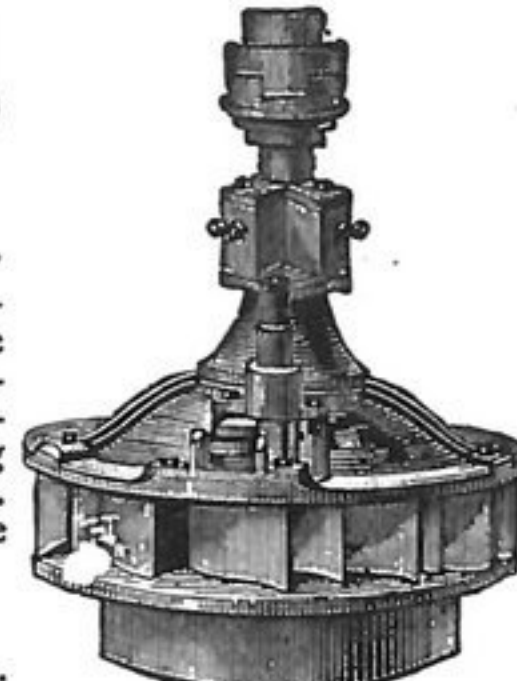
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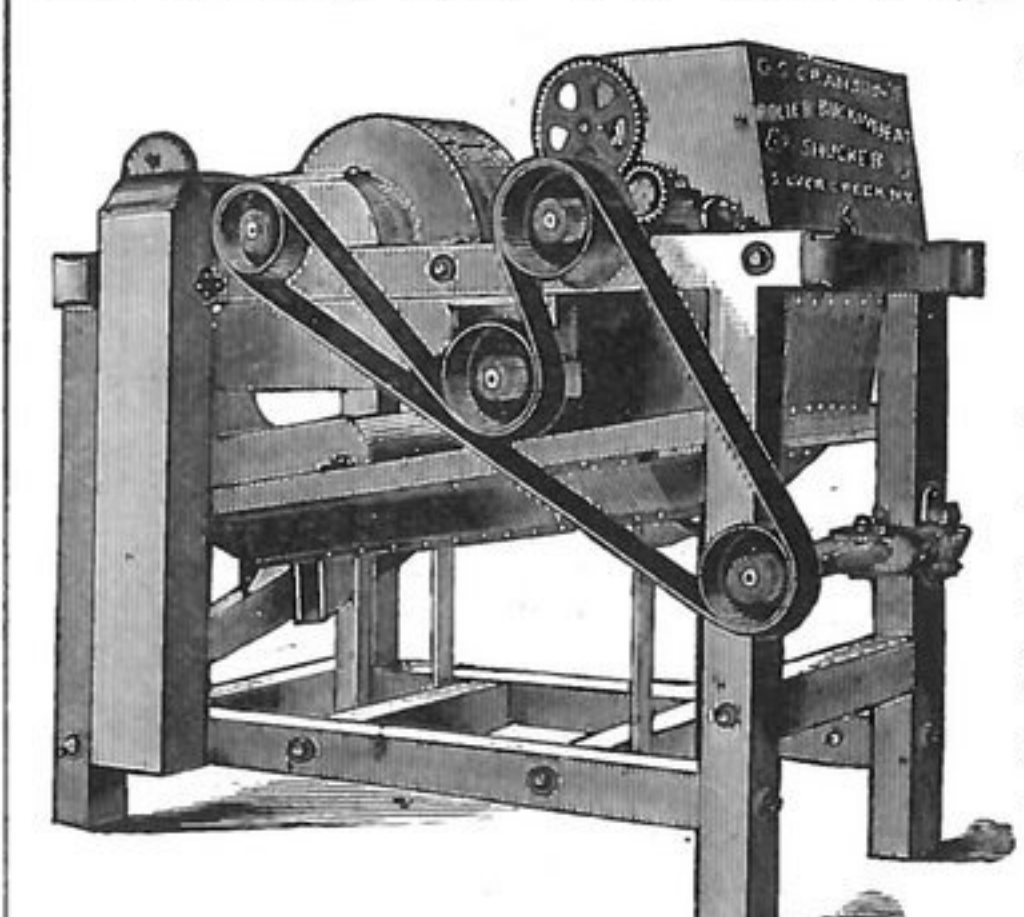
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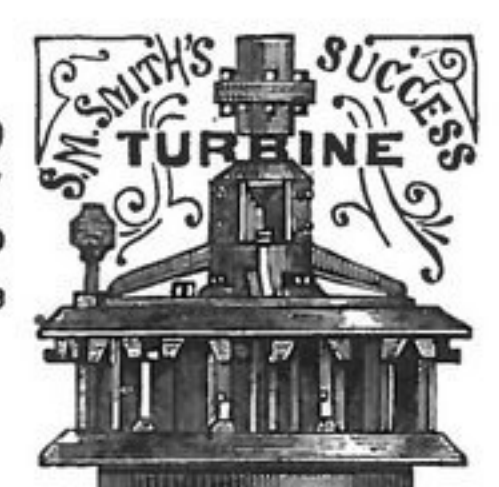
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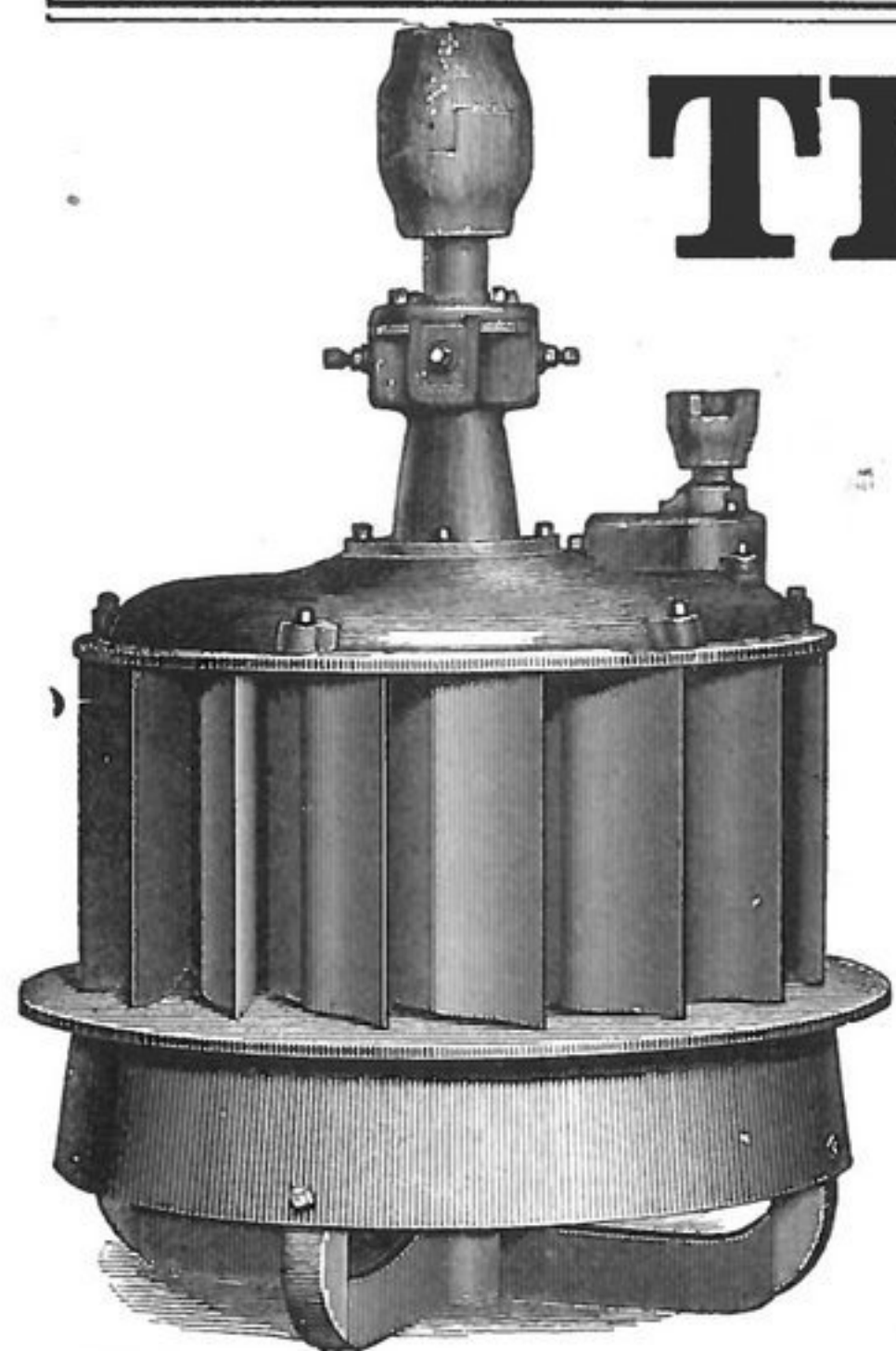
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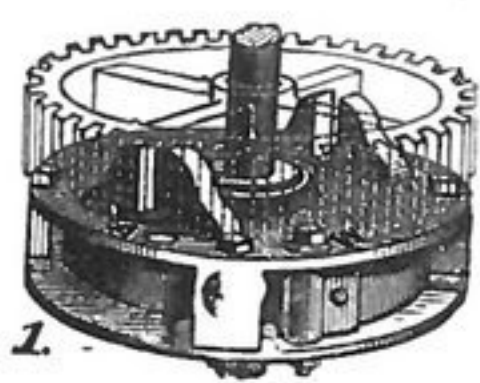
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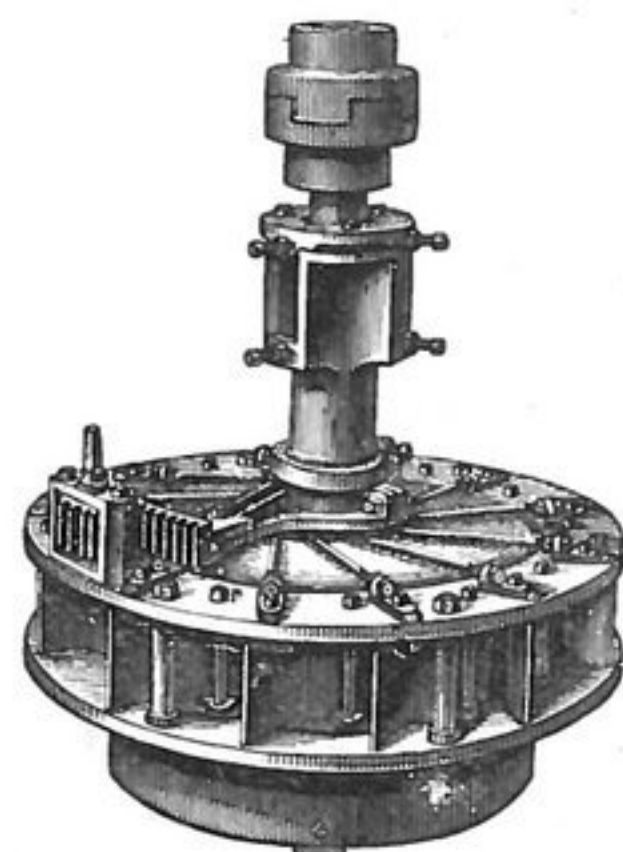
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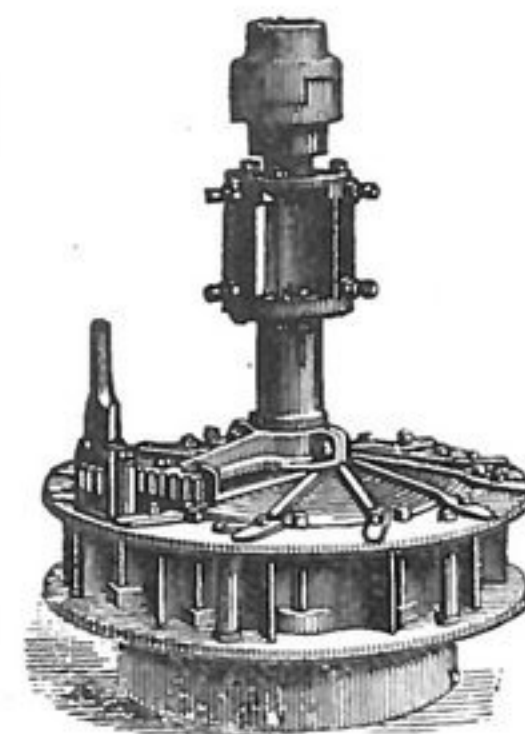
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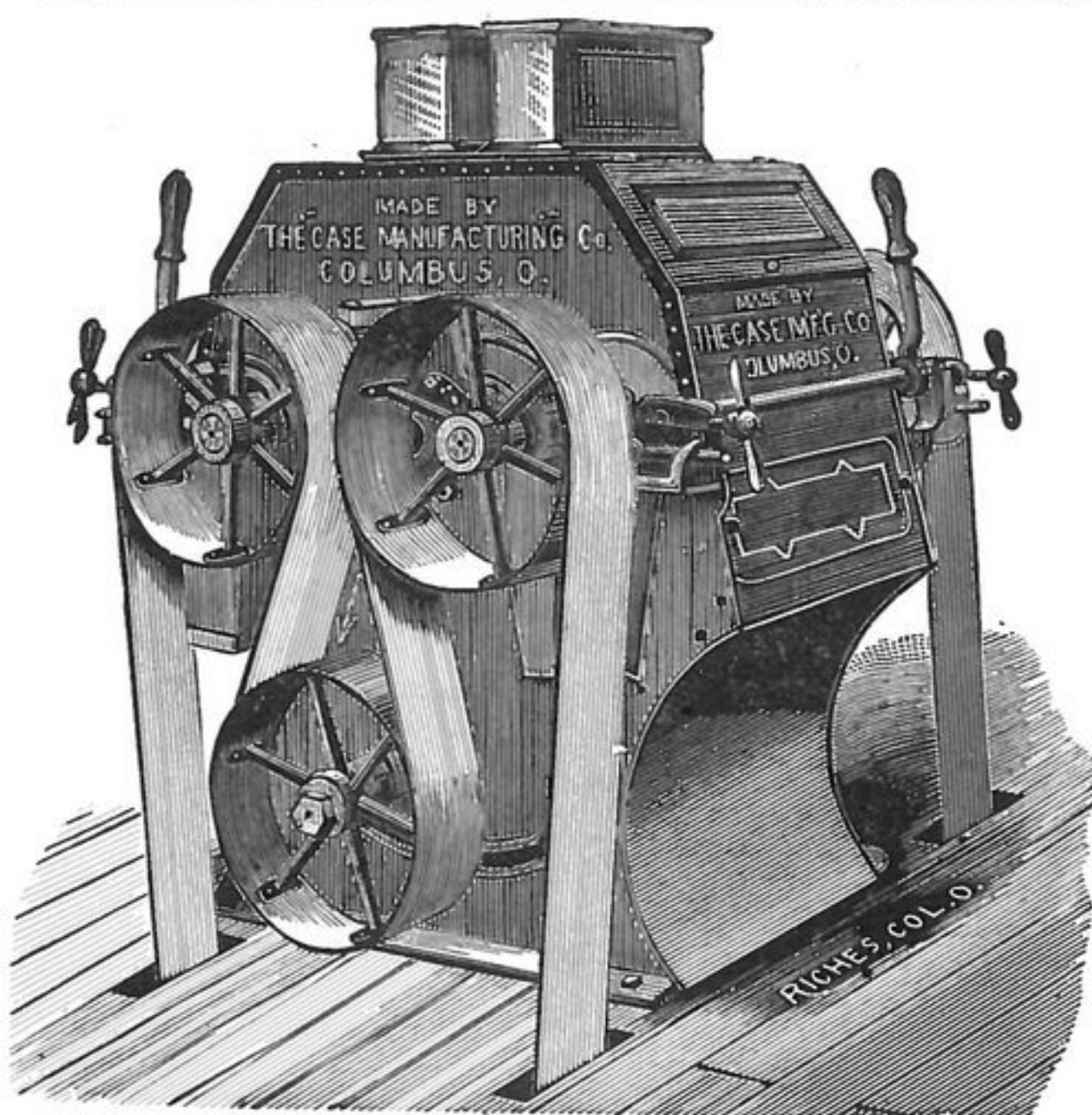
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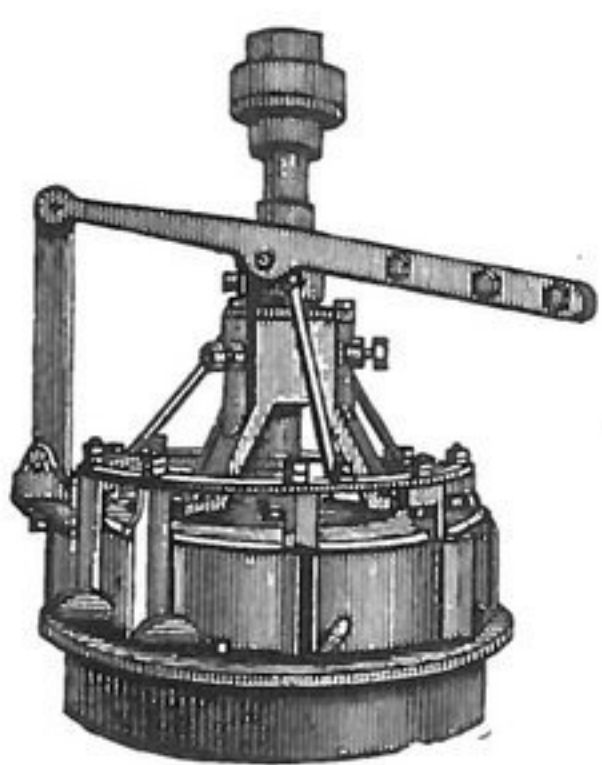
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Obenchain's Automatic Grinding Mill

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IT WILL GRIND MIDDINGS

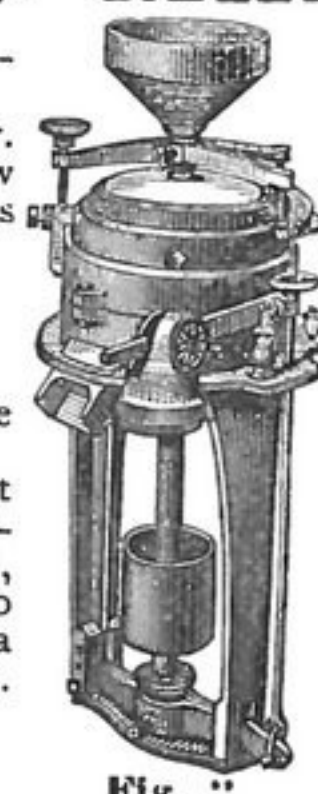
as slow as 10 pounds per hour, or as fast as 600, according to speed and pressure given, and cannot be excelled for grinding wheat or corn.

We make four sizes of these mills, 14, 20, 25 and 30 inches, all of the best quality of Old Stock French Burrs, set in solid iron frames. Cut No. 1 represents this mill as made to set upon mill floor. Cut No. 2 is our Hanger Mill, and it is intended that hanger and pulley pass down through the husk floor to be driven from any mill spindle or upright shaft. With these mills we make a specialty of constructing New Process custom and merchant mills at a low figure.

Fig. 1.

ILLUSTRATED PAMPHLET, GIVING FULL DESCRIPTION AND PRICE, SENT ON APPLICATION TO

KNOWLTON & DOLAN, SOLE MANUFACTURERS, LOGANSPOUT, IND.





OUR MINNEAPOLIS LETTER.

[From our own correspondent.]

THE FLOUR TRADE LESS FAVORABLE, WHILE PRODUCTION IS STILL KEPT UP—THE WASHBURN MILLS RUN FULL CAPACITY—BAD DLOOD BETWEEN PARTNERS—THE NEW PAIGE MILL TO BE BUILT AT FERGUS FALLS—A SCRAMBLE FOR THE CONTRACT—"JIM" HILL IN A HOLE—THE HEAD MILLERS EXCURSION—SOMETHING ABOUT WAGES—UNHAPPY COOPERS—NOTES, GOSSIP, ETC., ETC.

While Minneapolis millers seem to "keep a stiff" upper lip, and look ahead for better times, the flour trade fails to make any progress toward improvement, if anything, gradually becoming less favorable. The impairment of confidence in the east by the recent speculative break-downs, has not been without a certain effect, and is felt and complained of by the miller. Buyers appear to be afraid to take hold and buy, except for the most limited current needs, and to make sales millers often have to shade the prices to which flour was advanced a few weeks ago. The millers, however, express confidence in the future, and remain comparatively firm. The complaint of the shortage of good hard milling wheat is frequently heard, and not a few grain and mill men contend that there will not be enough to meet the needs of the mills until the new crop is available. There are some mills which are already husbanding their hard wheat, that it may be used to better advantage as the last of the crop comes in.

The mills here have not varied very much from a production of 100,000 barrels per week for several weeks. Fifteen to seventeen of them are kept in motion, and the daily production averages not far from 17,500 barrels. None, unless it be the Washburn mills, are run to full capacity, few doing any more work than is consistent with making good flour. It is noticeable that some of the mills which were the steadiest running last season, are frequently shut down this year. The Washburn mills keep pounding away, and manage to turn out an immense amount of flour, having the largest production in the city. The Pillsbury mills also make a very large amount.

The local wheat market opened weak to-day, and declined two cents, closing with No. 1 hard offered at \$1.01 with no bids; 95½c bid for No. 2 hard, and 91c bid for No. 1 northern, and No. 1 regular.

Reports regarding the condition of the crops in Minnesota and Dakota, received during the past two or three days, have been generally of an encouraging nature. Red river valley farmers are very hopeful. While they do not look for exceptionally high prices next fall, they expect that the large yield will offset low prices. As a result of a canvass made under the auspices of the Chicago and Northwestern Railroad company, to ascertain the wheat acreage in counties in Dakota, northwest of Sioux Falls, the following estimates have been arrived at:

| | |
|-----------|---------|
| Brookings | 100,000 |
| Kingsbury | 70,000 |
| Beadle | 50,000 |
| Spink | 60,000 |
| Clark | 50,000 |
| Codington | 125,000 |
| Hamlin | 75,000 |

The wheat in store here is about 2,150,000 bushels, and at St. Paul there are 550,000 bushels. Two weeks ago the stock here was 2,145,000 bushels, and at St. Paul, 745,000 bushels. The recent sales have been quite large, some weeks exceeding the amount ground by the mills. But these receipts are said to have not come from the farmers, but from the stocks of millers in country elevators.

The receipts and shipments at Minneapolis for two weeks is shown in the following table:

| FLOUR | | Receipts. | Shipments. |
|---------|---------|-----------|------------|
| | | Bbls. | Bbls. |
| May 20, | 1,097 | 98,772 | |
| May 27, | 750 | 124,602 | |
| Total | 1,837 | 223,374 | |
| WHEAT. | | Receipts. | Shipments. |
| | | Bus. | Bus. |
| May 20, | 54,000 | 39,000 | |
| May 27, | 439,500 | 32,000 | |
| Total, | 979,500 | 71,000 | |

The differences between Messrs. Goodrich & Woodward relating to the Union Mill have been adjusted, but not without stirring up a good deal

of bad blood. Mr. Goodrich turns his interest, covered by a mortgage held by his partner, over to Mr. Woodward, and the latter has leased it for two years to Morse & Sammis, who have been carrying on a grain commission business here for two or three years. They started the mill on Monday, placing Jos. McCartin in charge again. The feeling now existing between Messrs. Goodrich & Woodward, is not the friendliest. Mr. Goodrich managed the business, and his partner charges him with pocketing about \$18,000 of the firm's money, while it is intimated that there might have been other irregularities.

The roller mill contract for Paige's six hundred barrel mill at Fergus Falls, this state, seems to have been a great attraction for machinery men—big and little. Bill Gray, Allis' man, hove in sight early in the week, followed by Secretary Howland, of the Noye Mfg. Co.; Jim Pye, representing the Pray Mfg. Co., of this city, had preceded them. Then there were Mr. Vaughn, representing the Nordyke & Marmon Co., Eli Strong, of Kalamazoo, Mich., and numerous others of smaller fry. Who the lucky man is to be doth not yet appear, though there are several representatives equally confident that they each have the inside track. This is the largest mill job let in this section for some time, and the mill furnishes are naturally red hot for it. Mr. Paige is to be pitied for the punishment which he is undergoing, but this is one of the penalties of building a mill.

The *Journal*, of this city, in speaking of the differences which have arisen between the city and the St. Anthony Water Power Company, as to the water power belonging to the paper mill on Hennepin Island, which the city bought for a pumping station, sheds the following light on east side water power affairs: "It is well known in well posted circles, that after Jim Hill had bought the East Side water power, he suddenly woke up to the fact that he had secured a water power without any water! Farnham & Lovejoy, by deed reaching back through the hands of but one intermediate owner to the government, had the right to use 'all the natural flow of the river.' In high water, this made little difference, as there was enough of the *aqua pura* for all parties. But in times of low water, if the dams of the water power company, above Farnham & Lovejoy, interfered with the natural flow of the river, they had the right to take axes or other implements and cut out the dams of the Water Power company and secure the natural flow of the river for their use. When Jim Hill discovered this he was shrewd enough to see that his only safety was to buy out all the rights possessed by Farnham & Lovejoy, and he did so. But Mr. Hill did not and could not buy of Farnham & Lovejoy any power or property which they had previously deeded away. Now the deed of the power which the city purchased, comes in a direct line from Farnham & Lovejoy, and carries with it the original right of the firm's deed to the natural flow of the river, to the extent necessary to furnish water for a channel 'ten feet wide and eight feet deep.' This is the precise amount of power purchased by the city, and is big enough to give it from 1,000 to 1,500 horse power, and the city has the prior right to the use of all the water in the river to supply such an amount of power."

The head millers have partially arranged for their fourth annual excursion to Lake Minnetonka, and it is to be a great event. The date fixed for it to take place is Saturday, June 21, and round trip tickets are \$1.00. The Manitoba road will carry the party to Hotel LaFayette, where picnic grounds have been selected, and from there trips on the lake can be made on the steamer Belle of Minnetonka, which has been engaged by the millers. Dancing, games, fishing, boat riding, etc., will constitute the amusements. The boys are preparing for an immense crowd—perhaps 2,000 people—and will get it if the day is favorable. The millers have the nucleus of a fund for the erection of a monument to the memory of their fellow craftsmen, who lost their lives in the great mill explosion of 1878, and want to make as much as possible out of the excursion, to add to it. Washburn, Crosby & Co. are said to stand ready to give \$500 toward the fund, and other donations are expected. There is already about \$300 in the treasury of the Head Millers Association set aside for that purpose, and the profits from the excursion will undoubtedly make a large addition to it.

The millers in the three Washburn mills get double time for Sunday work, and as they receive regular wages of \$80 per month, and have had more or less Sunday work to do this spring, their pay has run up to \$100 per month or more. These mills are the only ones in the city paying double time for Sunday work, though there are some instances where more regular salary is paid.

Our coopers have a happy faculty for cutting one another's throats, and the millers continue to

profit thereby. Good all oak, tin hoop barrels are being sold here now for 38c, though some shops get 40 to 41c. These low prices have resulted from a fight for business among coopers, working coopers suffering as to wages as well as the "boss" as to profits. A year ago, barrels were selling for about 49c.

C. E. Barkham, formerly of the Washburn mills, is now traveling miller for the Stilwell & Bierce Mfg. Co., Dayton, Ohio.

E. P. Allis & Co. have their men here, putting in the compound cylinder of the Pillsbury A mill engine. The cylinder is 60x60 inches in the clear.

Woodbury Fisk, of the Minneapolis mill, and F. S. Hinkle, of the Holly, were recent arrivals with families from California.

Minneapolis, May 31.

CALEB.

Notes from the Mills.

The Fergus Falls, Minn., elevator, which burnt in February, is being rebuilt.

Corn planting in southern Dakota it was anticipated would be finished by the first of June.

Davison county, Dak., farmers expect to raise four times as much wheat this year as they did last.

It is said that \$1.50 per hundred has been offered for all of this year's crop of wheat at Fort Collins, Colorado.

Comanche, Texas, citizens raised \$7,000 for a flouring mill at that place to supply the loss of the one recently burned.

Fire, caused by sparks from a passing locomotive, destroyed a grain elevator and barn at Fitchian, Vermillion county, Ill. Loss, \$5,000; no insurance.

Wolf & Hamaker, of Allentown, Pa., are putting twelve pairs of Allis rolls in Gray's noiseless belt frames in the mill of Messrs. J. L. Riegel & Son, at Riegelsville, N. J.

The Richmond City Mill Works, of Richmond, Ind., are putting in a Gray's noiseless belt roller mill for Jackson Bros., of Downe, Kan. It is furnished by E. P. Allis & Co.

Richards & Butler, of Indianapolis, Ind., have recently ordered nine pairs of Allis rolls in Gray's noiseless belt frames from the manufacturers, E. P. Allis & Co., Milwaukee, Wis.

Allis & Co., of Milwaukee, Wis., are furnishing a complete roller mill outfit to Darrah Bros. & Co., of Big Rapids, Mich. It will include twelve pairs of Allis rolls in Gray's noiseless belt frames.

At the annual meeting of the Produce Exchange it was announced that the new building would cost \$3,200,000. A net annual surplus of \$75,000 is expected. Funded debt of the Exchange, \$1,275,000.

The flouring mills and elevator at Clay Centre, Kan., owned and operated by C. R. Barnes, was burned to the ground on Sunday morning last, involving a loss of \$40,000 offset, in part by an insurance of \$17,500.

The elevators of J. H. Townshend & Co., in Grafton and Minto, Dakota, are under three attachments, filed by the creditors, who were influenced in the action by the failure of the Northwestern Car Company.

Simpson & Gault Mfg. Co., of Cincinnati, Ohio, have recently ordered from E. P. Allis & Co., thirteen pairs of Allis rolls in Gray's noiseless belt frames, twelve of which were for the mill of J. W. Boyd & Co., Fulton, Ky.

Willford & Northway, of Minneapolis, have ordered of E. P. Allis & Co., ten pairs of Allis rolls in Gray's noiseless belt frames, for C. Albers, of Wausau, Ill., and one for Ackerman Bros., of Young America, Minn.

The Canadian Pacific railway company having agreed to make Port William its lake port, instead of Port Arthur, there is great indignation at the latter place. An elevator for 1,000,000 bushels of grain will be erected at Port William this summer.

The trade of Minneapolis millers with Canada has increased very rapidly during the past year, but the increase has been much greater during the past six months. Canadian mills have realized this fact for some time, and have vainly endeavored to invent some means of checking it.

Haldeman & Co., of Berrent, Ill., are making considerable headway, and when starting up will have twelve pairs of Allis rolls in Gray's noiseless belt frames in operation, the order for these rolls having been placed by the Slater Mill Co., of Blanchester, Ohio, with E. P. Allis & Co., of Milwaukee, Wis.

A fire at Dakota, Ill., May 31, destroyed the Chicago, Milwaukee & St. Paul depot and Jacob Williams' elevator. There were about fifteen thousand bushels of grain in the elevator, and the insurance on grain and elevator was but \$5,000.

The depot was also insured. The total loss is in the neighborhood of \$10,000.

At Cunningham, Mo., May 37, the steam grain elevator at the depot was destroyed by fire. The depot building of the Wabash, St. Louis & Pacific Railway caught and was also consumed. The loss of the depot building is said to be \$2,000. The grain elevator building consumed was about 40 by 100, feet, worth from \$600 to \$1,000.

The statistical agent for Minnesota for the agricultural department at Washington has received fragmentary reports from various sections of the State, from which he concludes that the prospects are fully as good as at the first of the month. From no section has there been any report of storms which have in any way injured the growing grain.

In northern Michigan there is a large area of land known as "plains," which is said to be poor land and not tillable. A movement is on foot to induce the legislature to establish an experimental farm, at Baldwin, Lake county, and determine by experiment what can be done with the land and what can be raised upon it. If something could be raised upon this soil there would be thousands of acres brought into the market cheap.

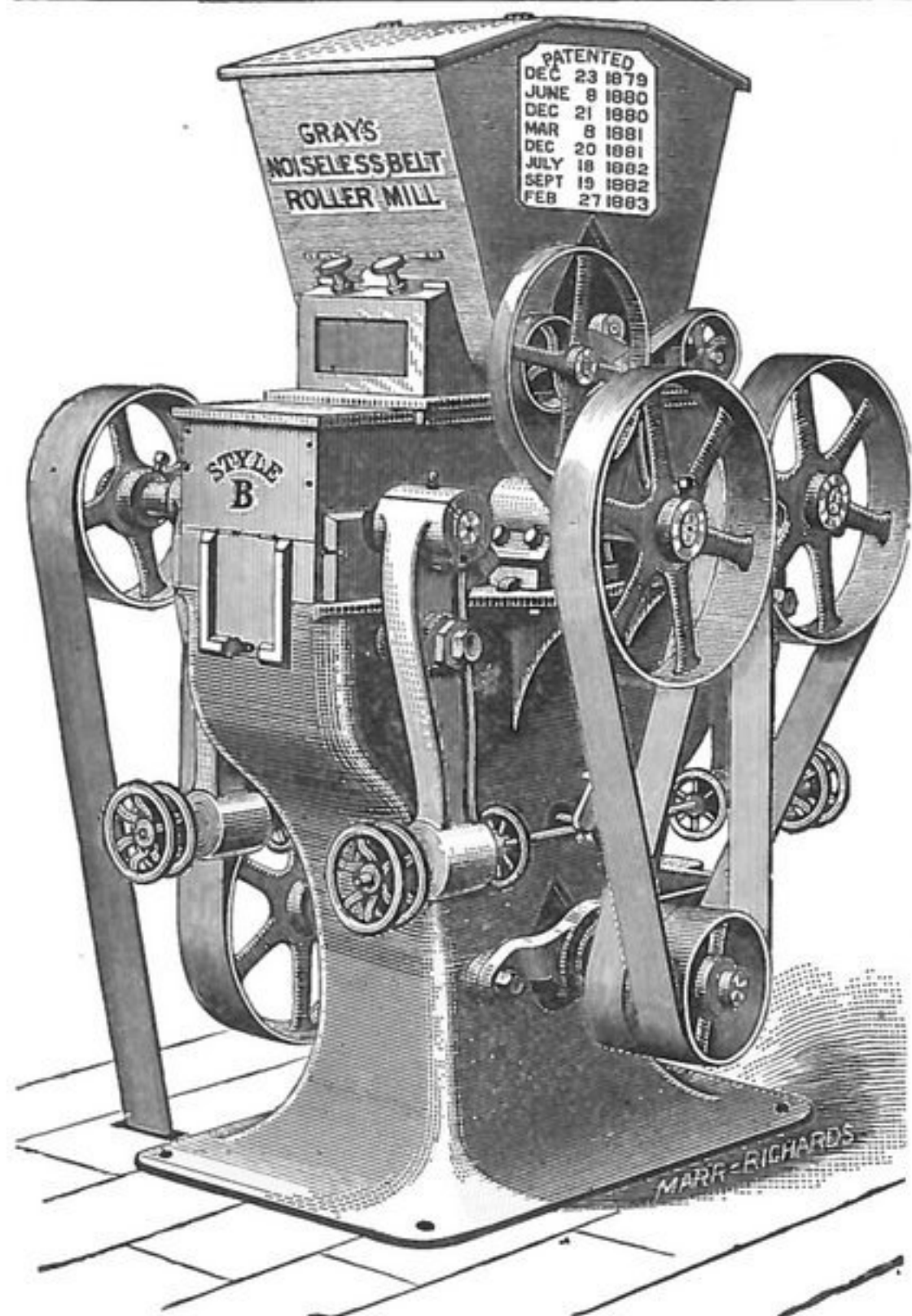
A number of heavy wheat-growers from all parts of north Dakota were at Fargo on May 27 to witness an experiment in plowing by steam, and express themselves enthusiastic over the result. A traction-engine drew eight-plows, turning the sod four inches thick as evenly and as well as could be done by horse-power, and at the rate of over twenty-five acres a day. It will mark a new era in wheat-growing, as it will enable farmers to plow at a cost of not more than \$1 an acre.

Reports from over 600 correspondents throughout Ontario show that the condition of fall wheat in the province is much more satisfactory than it was in May of last year. Yet it is not uniformly good, and there are some districts in which the outlook is somewhat gloomy. This is noticeably the case in the extreme ends of the province—westward of the meridian of Kingston. For the large middle districts the accounts are, on the whole, favorable, and the weather of this month has caused a marked improvement to take place everywhere. Complete returns of the acreage under crop have not yet been received, but as far as they have been obtained they indicate an area 20 per cent less than last year.

The crop situation in Nebraska is very flattering just now. The spring opened late, but work was pushed, and rains have been for the most part favorable in quantity and timely. Spring wheat and oats started at once, and look nicely now. The entire corn crop is planted. It is very large in acreage, and farmers are, to say the least, in excellent spirits. Some mistakes were made in selecting seed corn, and some have failed to come up. This is not a general complaint, however, and all over the state the young plant is shooting up, giving promise of the future harvest. Reports from all parts of the state are identical and favorable. About the 22d there were a few days of rain and cold weather, but now it is warm and everything vegetable is making wonderful progress.

The Manitoba road furnishes the following recapitulation of crop reports for 1884, as compared for the same time with the reports of 1883, as furnished by 116 of the 131 stations of that road in the Red River valley: One hundred and one stations report seeding completed, and fifteen nearly so; eighty-three report seeding finished from one to two weeks earlier than last year, twenty-nine all the same time, and ten later. Eighty-five stations report a wheat acreage from 3 to 60 per cent. larger than in 1883, twenty-one the same, and ten decreased. In oats, thirty-seven stations report an increase in acreage of from 4 to 20 per cent, sixty-six the same, and thirteen decreased. In barley, twelve stations report an increase of from 5 to 35 per cent, seventy-one the same, four a decrease, and twenty-nine none planted.

An association of merchants has been formed in the city of New York, under the name of the Traders' and Travelers' union, the object of which is to maintain the interest of its members against freight discriminations and various alleged abuses of railroad pools. They have long been begging the state legislature to protect them, and, having accomplished nothing in that direction, they now propose to see what they can do in the way of protecting themselves. That they will succeed quite as well without as with the help of a railroad commission and a special statute made to fit the supposed necessities of their case, is quite probable. They claim to have already secured the co-operation of some eighty different interests, representing a capital of \$350,000,000. The propose, it should be stated, not only to protect themselves against railroad pools, but also against telegraph corporations.



GRAY'S NOISELESS BELT ROLLER MILLS. STYLE "B" for SMALL MILLS

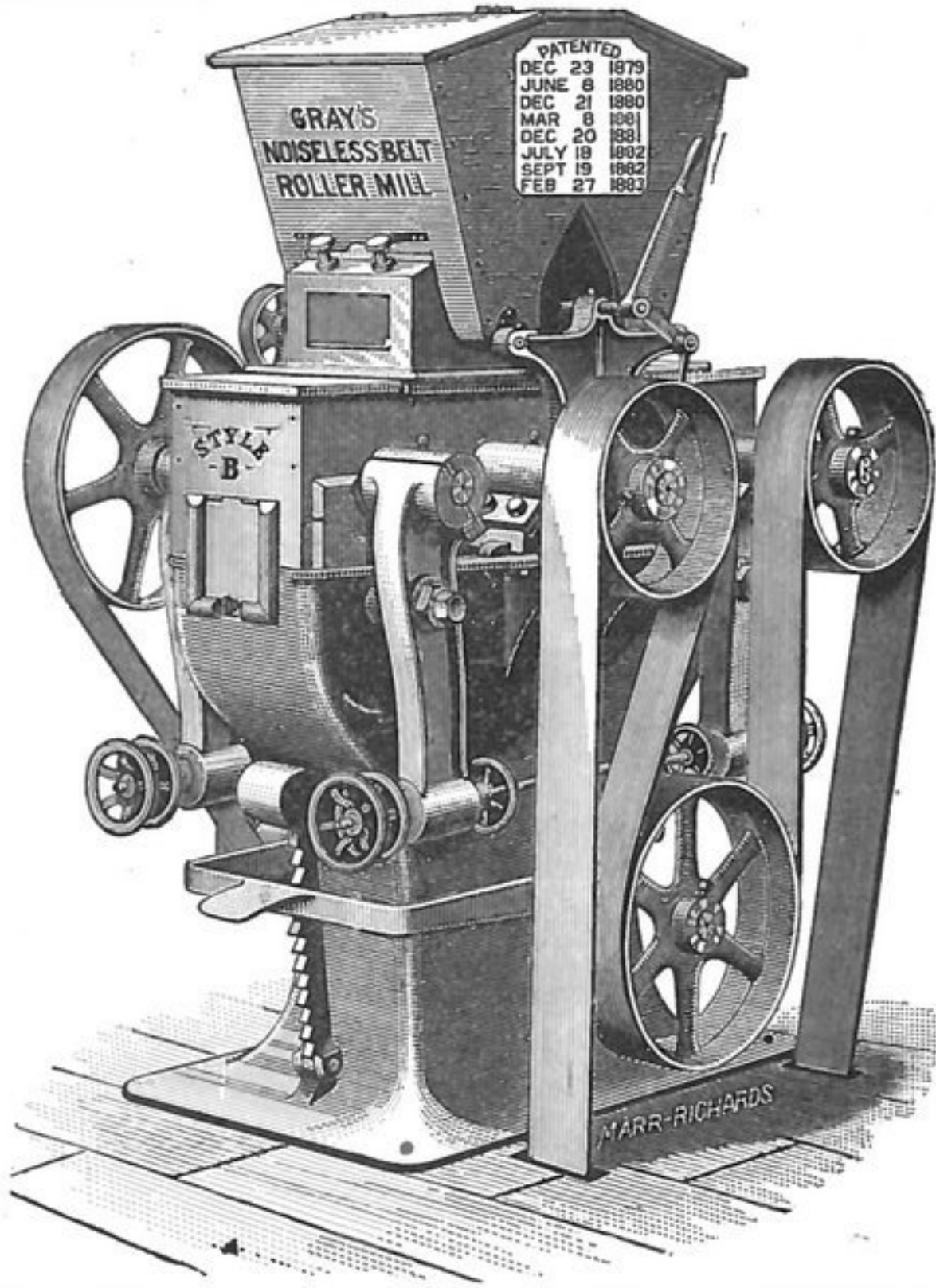
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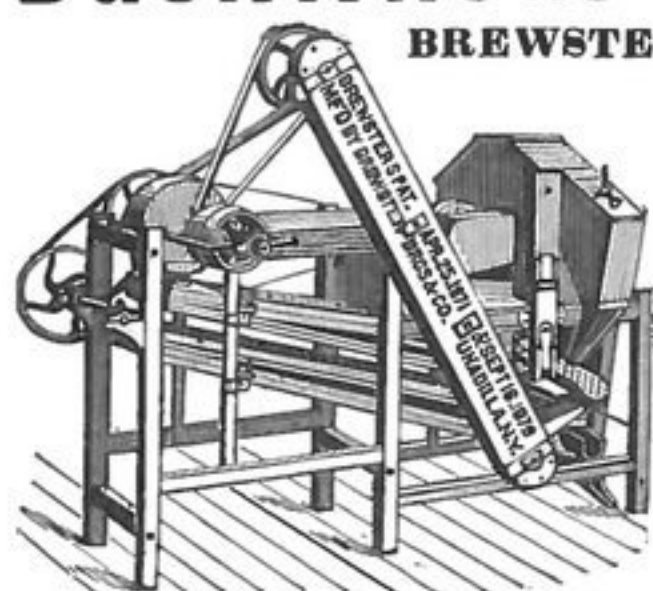
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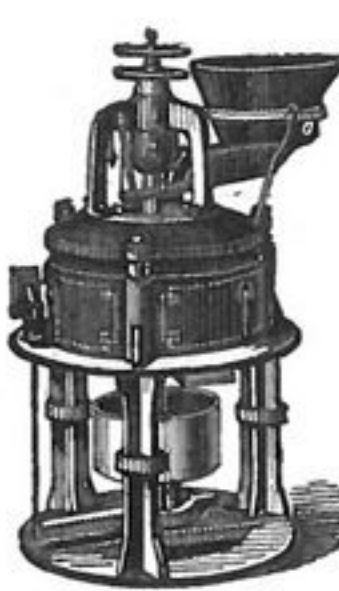
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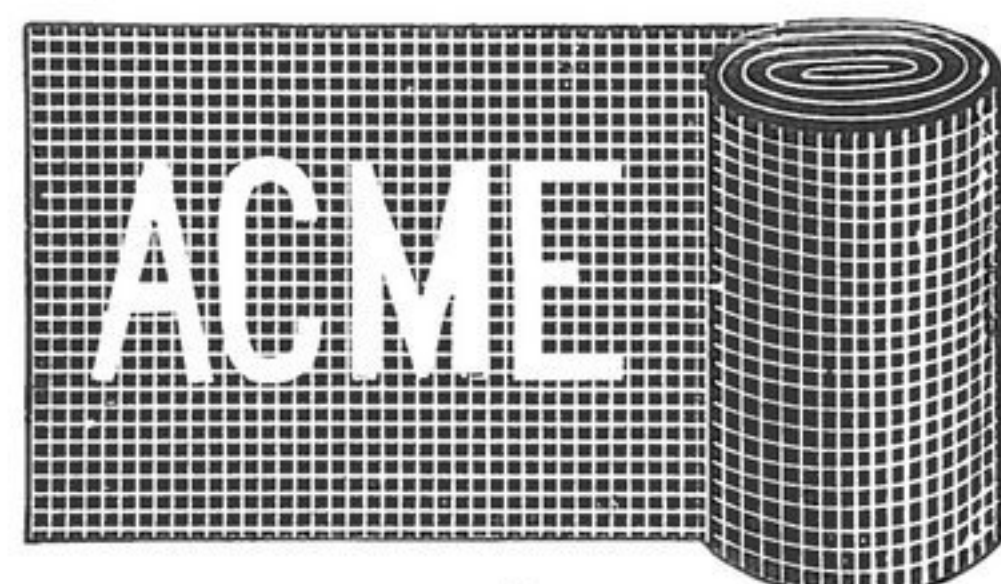
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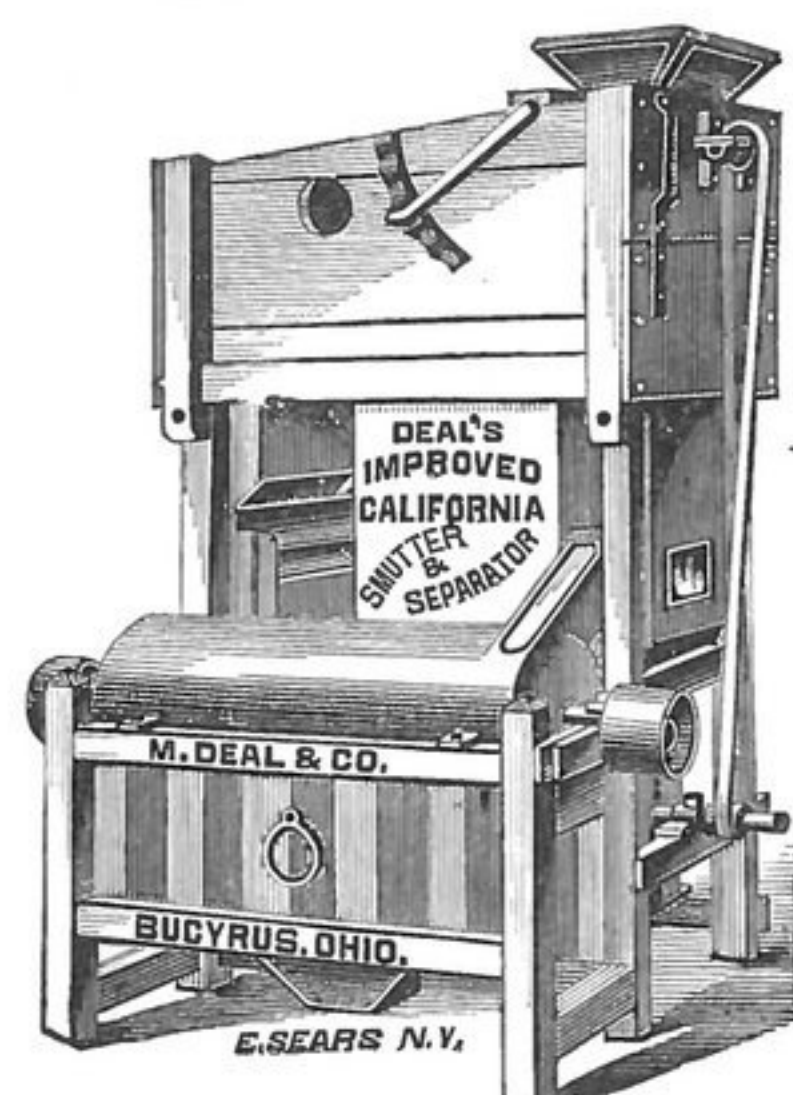
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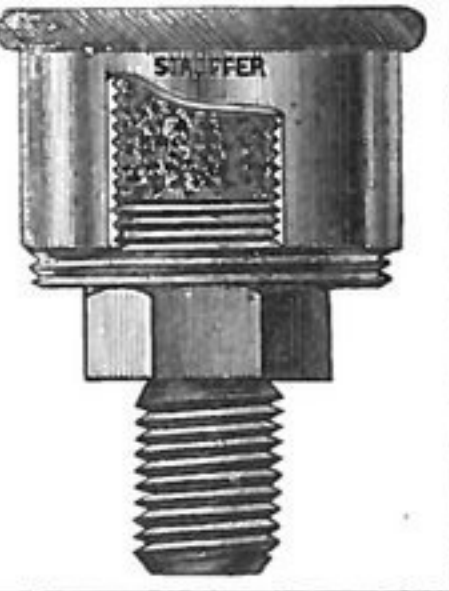
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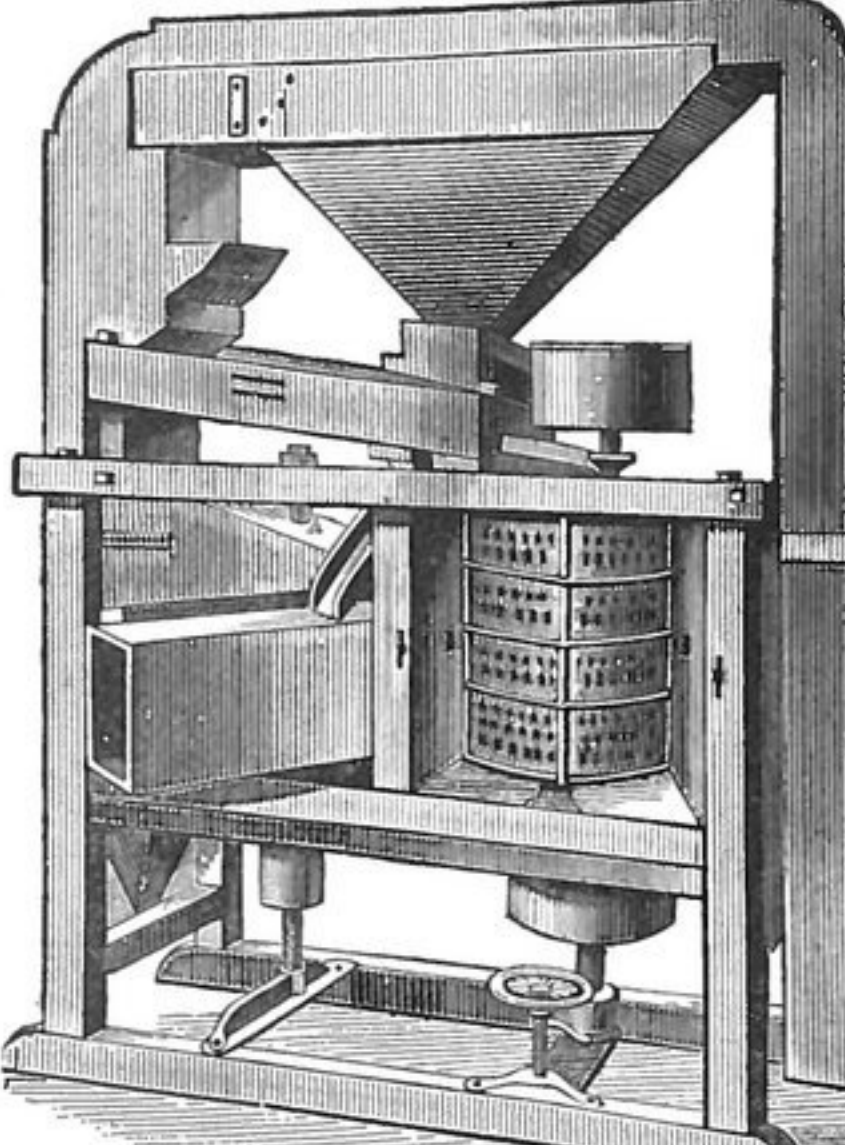
COMBINED.

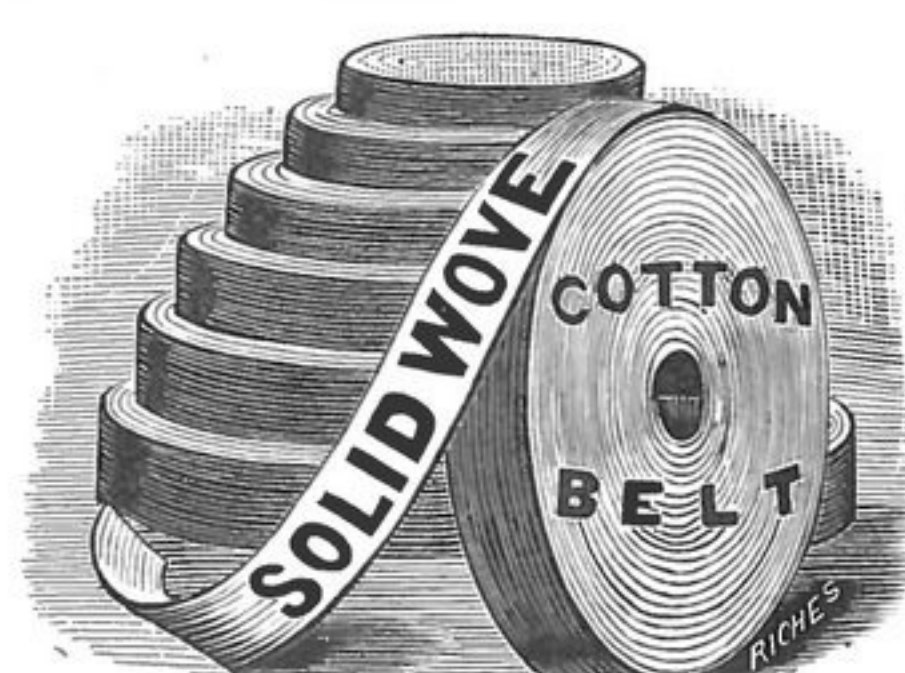
It will clean, rub and separate wheat, and take out the rat balls, black steek seeds, joints of straws, cockle and other impurities. It will also rub off more fuzzy ends and dust from the creases of the berries, by rubbing the wheat together as it passes up between the rubbers, so each berry must get rubbed, scoured and polished alike. It will do all of this work better and last longer than any other machine of the kind. All this we guarantee. It will also clean barley and rye.

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SUNDAY LABOR IN AUSTRIA.

A DEPUTATION of the Austrian Millers' Association and the representatives of some of the largest Austrian mills, went on the 3rd of May, to the chairman of the Committee on Trade, of the Austrian House of Parliament, in order to draw his attention to the serious injury which would be done to the Austrian milling industry if they were compelled to stop their mills on Sundays, according to a new Governmental decree which is about to be issued. They proved from statistics that a decrease of 18 per cent. of their output would entirely deprive them of any chance to compete with Hungaria, America, and Russia. They would not be able to do any export business, and their ruin would be certain. Moreover, the operative millers would receive much less wages, and agricultural interests would be most injuriously affected by such an innovation. The chairman, Count Belcredi endeavored to appease the deputation, by referring them to a paragraph of the proposed bill, where the Government is given power to permit those industries which depend upon uninterrupted work to run their factories on Sundays; but he could not promise that these industries should be mentioned in the bill by name; he also did not think that they need fear any inequality in the treatment of any industry in different provinces, because permission for Sunday work would have to be obtained from the Government in Vienna, and not from the provincial authorities. It is said the millers are not yet satisfied with these explanations; they intend to call a general meeting for the discussion of this, to them, very important question.

NOTES.

The barley mill in Atzgersdorf, near Vienna, was destroyed by fire on May 5.

Spanish flour merchants complain of the treaty with the United States in regard to Cuba.

The French Government makes an appropriation annually of \$5,000,000 for agricultural instruction and experiments.

For the first time in the history of the grain trade the largest quantity of wheat on passage to Great Britain from any one country is from the Australian colonies.

The Vice-Deputy Consul at Turin, Italy, has established a room where American manufactured products will be exhibited. All goods sent there will be at the expense and risk of the shipper.

From Russia we hear that spring sowings have been carried on in very favorable weather, and that the winter wheat is of an exceedingly healthy appearance. The markets are firm, but not active.

An elevator is to be built at Pressburg, Austria, at a cost of about \$30,000. The capital is divided into 60 shares, and according to the latest news, the shares were all taken and a suitable site selected.

Amongst the American visitors at the forthcoming Millers' Convention, at Stockton-on-Tees, will be Mr. Seybt, of Highlands, Ill., (President of the Illinois Millers' Association), and Mr. C. M. Palmer, the editor of our well-known American contemporary, the *Northwestern Miller*, says the *Millers Gazette*.

To improve the quality of the bran obtained in the manufacture of starch, in a patent obtained by Mr. W. Dammann in Halle, Germany, the bran is dried with a rotary motion in heated air, and then ground. This process is said to make it easier of digestion, and also fit it better for shipments over long distances.

Messrs. Higginbottom & Stuart of Liverpool, have orders on hand for fourteen of their patent disc mills; also four patent washing and stoning machines for Indian Wheat, together with four of their improved patent wheat draining machines. They report that their disc mill is steadily gaining in favor with millers who take the trouble to investigate the merits and capabilities of this machine.

The Swiss consul at Barcelona advises all merchants who have the intention of establishing any business connections with Spain, to give nothing on credit under any circumstances, before they have made the most painstaking enquiries about the standing of the firms. He states that of late many swindle firms have sprung into existence, who will accept and take any form of merchandize, because they never have and never had the slightest intention of paying for them. The victims of such firms are already quite numerous.

At the last meeting of the German Export Association, it was stated by the Chairman that the Association's enterprise has recently been centered on the development of trade with the east coast of Africa, where it is proposed to erect German factories. Another speaker, who had just returned from Africa, spoke of the trade in this direction for Germany, and stated that he himself established there a considerable outlet for his own products. From Zanzibar, the Hamburg house of William O'Swald has opened extensive trading relations with the interior of Africa. Further south Germans are doing an important trade with the natives, and also with the Boers.

The *Toronto Globe* says that the high duties on imports and the stringent regulations under the present law of the Dominion greatly injured the Grand Trunk, and also the city of Montreal, where steamships cannot now obtain adequate cargoes. It says that the duty on coal used by the Grand Trunk for the six months ending December 31 was, at 60 cents a ton, \$139,956. This is more than 10 per cent upon the total payroll of the company for that period, and, in order to keep its expense account within reasonable limits, the company has now reduced wages 10 per cent. Thus the tariff obstructs business, and is saddled upon labor.

Farmers in England have taken to beet growing. In Norfolk they have undertaken to grow this season at least 900 acres of sugar beet from selected seed, and on the faith of this an association has been formed, which, long before the beet is ready, will have \$400,000 worth of plant on the ground ready to make sugar as fast as the roots come in. The farmer will get \$5 a ton for the white beet delivered at the works, and as he can grow from fifteen to twenty tons to the acre he will, after allowing for heavy manuring and all costs of land, labor, seed, and transport, be able to reckon, even in an indifferent season, upon a return of at least \$15 an acre, which must seem to him, after recent experience, "wealth beyond the dreams of avarice," as Dr. Johnson said of the revenue of Barclay's brewery.

Toledo Mill Picks and Stone Tool Mfg. Co.



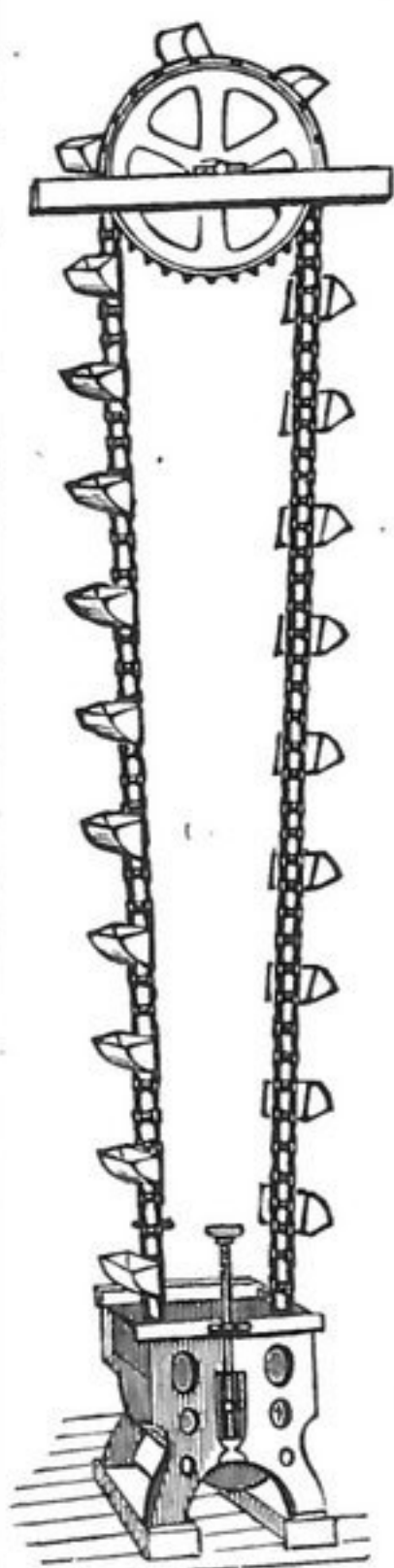
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N. B.—All Mill Picks ground and ready for use (both old and new) before leaving the shop. No time and money lost grinding rough and newly dressed Picks. All come to hand ready for use.

ALSO MANUFACTURERS OF
SHAFTING, PULLEYS, HANGERS COUPLING
AND MACHINE JOBBING.



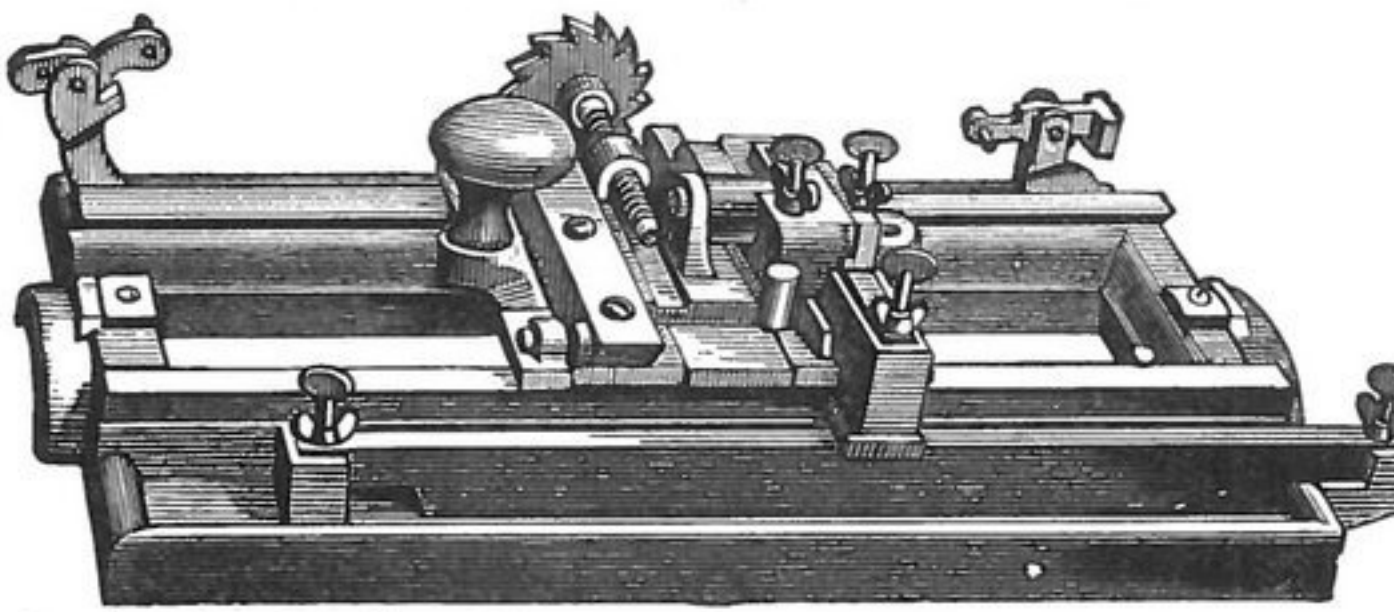
ANTI-FRICTION Roller Detachable CHAIN BELTING

FOR
ELEVATORS
CONVEYORS,
Carriers, Etc.
AND FOR
DRIVING PURPOSES.

A Superior Chain Belting
Manufactured and Sold by
Lechner Mfg. Co.
COLUMBUS, OHIO.

Send for Catalogues and Price List.

HOOVER'S IMPROVED DIAMOND MILLSTONE DRESSING MACHINE.



ADAPTED TO ALL KINDS OF DRESSING.

| | |
|---|---------|
| No. 1, to face and crack | \$25 00 |
| No. 2, to face, crack, dress furrows, and will dress any size stone | 45.00 |
| No. 3, to face, crack and dress furrows | 40.00 |

Will do as good work, and is more easily adjusted than any other machine. Sent on 30 days' trial. Address for circulars, containing full information.

C. S. HOOVER, Patentee and Manufacturer, 409 East King St., LANCASTER, PENN.

RE-GRINDING AND RE-CORRUGATING ROLLS!

We have recently provided ourselves with special machines for this purpose, and are prepared to execute all orders promptly.

SEND IN YOUR DULL ROLLS.

THE BRADFORD MILL CO.

CONTRACTORS AND GENERAL MILL FURNISHERS.

Eighth and Evans Sts., - Cincinnati, Ohio.

FLOUR MILLS BUILT

OR REMODELED ON ANY SYSTEM.

Roller, Stone, or Mixed

PLANS AND ESTIMATES

Furnished Promptly.

FLOUR MILL

CORRESPOND WITH US

FOR

ANYTHING NEEDED IN A MILL

IT WILL PAY YOU.

FAIR PRICES FOR

Excellent Machinery

1844

THE SIMPSON & GAULT MFG. CO.

MANUFACTURERS, CINCINNATI, OHIO.

1884

IRON WORK OF ALL KINDS

Designed For

STYLE AND STRENGTH.

PATENT MILL IRONS

UNEQUALLED.

Write For Estimates.

MACHINERY

DUFOR'S GENUINE BOLTING CLOTH.

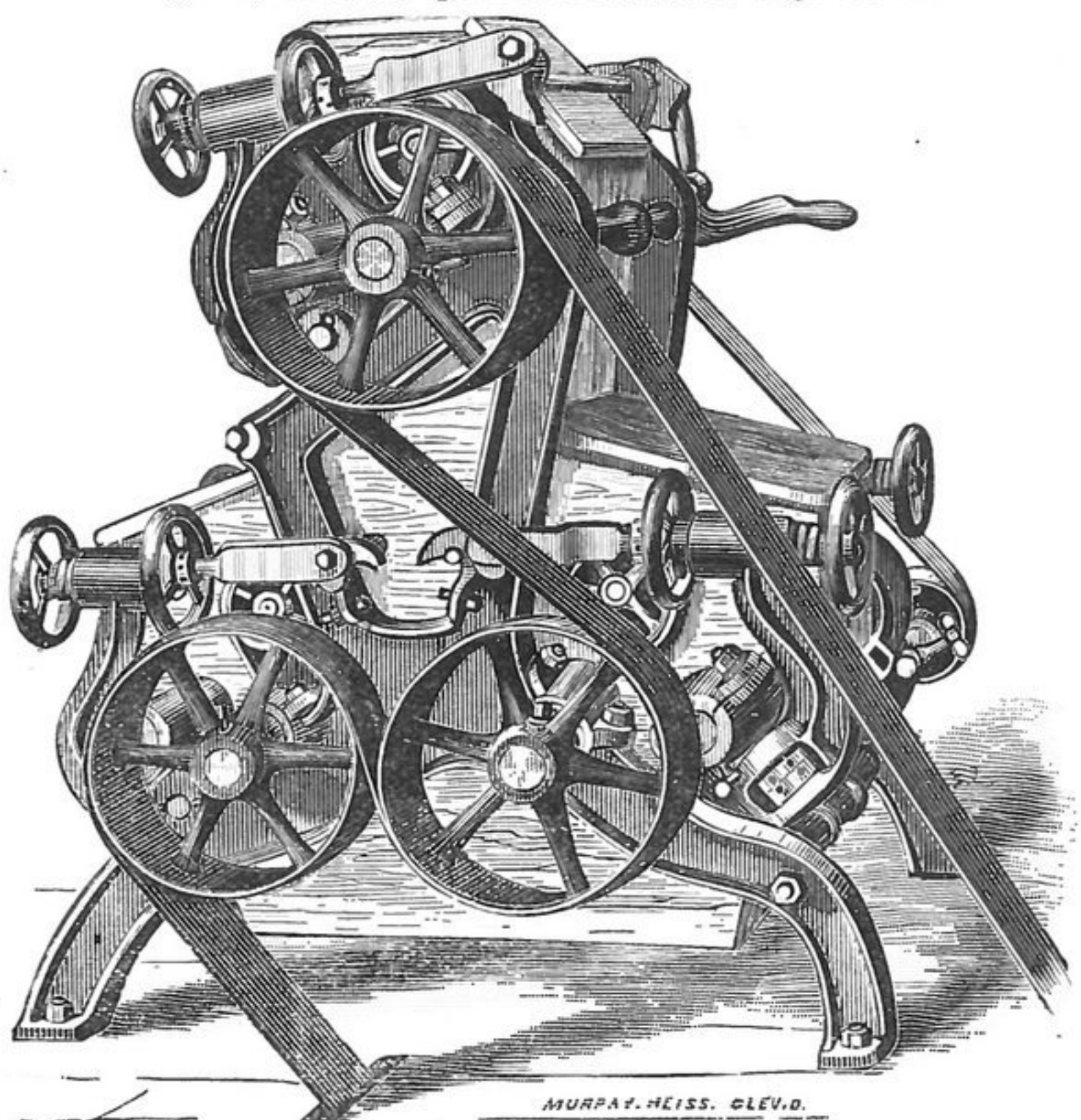
WE HANDLE NO OTHER.

Cheap Cloths are often sold by Dealers for this

POPULAR BRAND.

THE RIDER ANTI-LOW GRADE WHEAT BREAK AND THE MILLER ROLLER MILLS.

We have had unparalleled success with our mills, and are putting in the Rider System, and changing some of the most Celebrated Mills. The leading mills of Ohio, Messrs. Hardesty Bros., Canal Dover, Ohio, are using the Rider Break and System, and cannot Speak in Praises Too High for both Break and System.



We can make small mills equal to large ones. Write us for Rock Bottom Prices, and Undoubted Reference of parties using our Breaks and Rolls. By adopting our system you can save money, also save from 8 to 10 per cent low grade over other systems, and keep both quality and yield up to the best.

THE MILLER CO., CANTON, O.

REVOLUTION IN THE ART OF MILLING

As applied to small mills. MR. ODELL has developed
a complete and

PERFECT SYSTEM FOR SMALL MILLS

Of Thirty to Seventy-Five Barrels Capacity per day,
which will revolutionize the building of such mills.

ASTONISHING RESULTS ARE PRODUCED!

In advance of anything heretofore shown, and at

A GREATLY REDUCED COST

We invite millers from all sections to write to us for particulars, or make us a visit and investigate. We can save you a good deal of money, and give you a mill unsurpassed by any.

STILWELL & BIERCE MFG. CO.

DAYTON, OHIO, U. S. A.

DUFOUR BOLTING CLOTH.

HAS BEEN AWARDED
FIRST AND ONLY PREMIUM
AT THE
Millers' International Exhibition.



Office of THE MILLING WORLD.
Buffalo, N. Y., June 4, 1884.

In its issue of this morning the New York Commercial Bulletin says: A survey of the breadstuffs 'situation' reveals no very important changes in the market bearings in general, and yet prices are quite generally lower to-day; while the field of statistics is regarded by many conservative calculators as showing a bullish relation of figures. The direct pressure on the markets is the forcing and favorable weather which, according to most of the accounts, is fast compensating for any of the previous set-backs. It is the brilliant weather and the prospect of early and large crops that is pushing old grain out of the interior to the western trade centers, and bringing a pressure to bear on the seaboard markets in the way of "c. i. f." orders. Exporters are only in the buying mood as long as they are allowed to name the prices, and they will take an unlimited amount of stuff at their own figures, which, in the face of the free offers to sell, are constantly weakening, until they are now at a level so low that holders are refusing to go on any further; exporters have been buying spring wheat to-day, starting at 97c and retreating to 95c for No. 2 Chicago. On the break a good business was done. There has been an increase in speculative activity, or rather the transaction in future deliveries has been larger. We understand that it is the selling by discouraged longs that makes the market more active and not any new speculative interest or maneuvering. June wheat declined 1 3/4c and recovered 3/4c; July declined 1c and recovered 1/2c; August declined 1c and closed at the lowest point; September declined 1c and recovered 1/2c. Tone of the market finally steady.

Because wheat is a little lower to-dry, it is decided by the flour buyers that flour ought to be a little lower. They have not been able to get the holders around to this way of thinking, and the consequence has been a session destitute of business of importance, and values, owing to the stand-off between buyers and sellers, necessarily somewhat nominal. City flour is selling at \$5.00 @5.05, and everything of kindred quality from the country mills must comply with this price or remain unsold. There is no pressure to sell flour of any kind. On the contrary, holders are generally firm in their views, as they must be on the testimony from their mills as to the scarcity of good grain for grinding and the impossibility of replacing flour from the West sold at present prices. The city mills are the only ones that are doing well; they are sold well up, and perhaps a little ahead on their tropical orders. Rye flour is in a little better demand, and as there is not much of it here the market is firm; no advance, however; \$3.90 is top notch for the best here. Corn goods are slow of sale but steady. Bag meal is quiet and a shade easier. Mill feed is quiet but steady at yesterday's figures.

FOREIGN EXCHANGE.

Dull but fairly steady at an advance, which was due to the selling of stocks on London account. The posted rates closed at 4.85 for sixty days' and 4.87 for demand. The actual rates ranged: At 60 days' sight, 4.83 1/4 @4.83 3/4; demand, 4.85 1/4 @4.85 3/4; cables, 4.86 1/2 @4.86 3/4, and commercial, 4.82 @4.82 1/4. Continental exchange quiet; francs, 5.20 @5.19 1/2 and 5.17 1/2 @5.16 1/2; reichsmarks, 94 3/4 @95 and 95 1/4 @95 1/2; guilders 40 and 40 1/4. The closing posted rates were:

| | 60 days. | 30 days. |
|--------------------------|----------|----------|
| London..... | 4 85 | 4 87 |
| Paris francs..... | 5 17 1/2 | 5 15 |
| Geneva..... | 5 16 1/2 | 5 14 3/4 |
| Berlin, reichsmarks..... | 95 1/4 | 95 1/2 |
| Amsterdam, guilders..... | 40 1/4 | 40 1/2 |

BUFFALO MARKETS.

FLOUR—City ground clear Duluth spring \$5.25 @5.75; straight Duluth spring, \$5.75 @6.00; amber, \$5.75 @5.85; white winter, \$5.75 @6.00; new process, \$6.75 @7.00; Graham flour, \$5.25 @5.50. Western straight Minnesota bakerns, \$5.75 @6.00; clear do, \$5.25 @5.75; white winter, \$6.00 @6.25; new process, \$6.75 @7.25; low grade flour, \$2.50 @4.00. CORNMEAL—Market steady, with a fair demand. Coarse, \$1.20; fine, \$1.80 per cwt. RYE FLOUR—In fair demand at \$3.75 @4.25. OATMEAL—Ingersoll, \$5.75; Bannerman's granulated, \$6.00; Schumacher's Akron, \$6.25 per bbl. BUCK-

DUFOR & CO.'S CELEBRATED BOLTING CLOTH.

FIRST AND ONLY PREMIUM
OVER ALL COMPETITORS!
PURCHASE ONLY
FROM RELIABLE DEALERS.

WHEAT FLOUR—Demand fair at 3.50 per cwt. WHEAT—Quiet. Sales 8,500 bu No 1 hard Northern Pacific at \$1.07 cash, 10,000 bu do at \$1.08 July; at the Call Board offered at \$1.07 and \$1.05 car-lots cash, \$1.06 1/2 asked \$1.05 bid to arrive, \$1.07 asked \$1.05 bid June, \$1.08 1/2 asked \$1.08 bid July, \$1.08 bid Aug. and Sept. Milling white offered at \$1.09, milling red at \$1.02. No 2 red at \$1.05, and extra at \$1.07 @1.08. CORN—Weak. Sales 3,500 bu No 2 at 60c, 8,900 bu do in two car lots at 59 1/2c, all in store; eight car-lots do. at 60c, two do at 59c, 2,700 bu new mixed at 58c, and 5,000 bu No 2 at 59c. July. At the Call Board 59c. was asked. 57 1/2c. bid June, 61c. asked Aug. OATS—No 2 Western mixed 37 1/2 @38c, No 2 white 39 1/2 @40c, State from wagons 42 @43c. BARLEY—No. 1 Canadian 88 @90c, No. 2 do. 80 @83c, No. 3 do. 70 @75c, six-rowed State 75 @78c. RYE—No. 1 Western nominal at 71 @72c.

WHY WHEAT IS LOW IN PRICE.

In a special report upon the production of grain in the United States, J. R. Dodge, statistician for the Department of Agriculture says that the distribution of the wheat crop of 1882 was 48,000,000 bushels less than the production, which increases the supply the present year of consumption to 468,000,000 bushels. The requirement for consumption, on the basis of a population of 55,000,000, is 259,000,000 bushels; for seed about 53,000,000; or 312,000,000 exclusive of exportation. The exports from July 1, 1883, to February 29, 1884 were 71,321,538. If continued at no greater rate of shipment, the exportation of the year will not exceed 97,000,000 bushels. This would make the distribution 409,000,000 bushels, while the estimated production was 420,000,000 bushels, exclusive of the surplus of the crop of 1882. This leaves an adequate supply for any probable emergency.

If we take the results of the March investigation, we find 119,000,000 bushels in the hands of farmers and 31,000,000 in elevators and warehouses, or 150,000,000 unmilled, in addition to the flour in mills and on the market. The spring wheat requirement for seed is not above 15,000,000, and a possible export of 35,000,000 will then leave 100,000,000 in course of distribution. The wheat of the South will be ready for milling before half the available supply is consumed.

An erroneous impression has been derived from the fact that the European crops of last year, as estimated, were less by 78,000,000 bushels than the average production. But the product of 1882 was 126,000,000 above that average, giving an excess of 48,000,000 above the rate of consumption of the prior period of eight years. The statements is as follows:

Annual average, 1884-'81. 1,143,826,014
Annual average, 1882. 1,270, 67,150
Annual average, 1883. 1,066,088,688

To this excess of 48,000,000 add 48,000,000 bushels surplus to the United States in 1882, and increased production in India, and it will not be difficult to understand how the markets of the world have been glutted during the last year. To gather in the surplus of 1882 and carry it half around the world and place it on the market, run it through the mills and various channels of trade that lead to consumption, requires time, and gives to 1883 a plethora of wheat in a year of low production. Some idea of the trustworthiness of these estimates may be gained from the fact that in a period of six years ended with 1882 the estimates of the Department of Agriculture regarding the production and the total distribution of wheat for food, for seed and for exportation varied from the ascertained facts only 27,657,200 No more satisfactory result of the test of six years' calculations, on the same basis could be desired. The only change in rate of consumption is the reduction of one-fourth of a bushel per capita for 1881, the year of scarcity and high prices.—Chicago Tribune.

In his address at the annual meeting of the New York Produce Exchange, held Wednesday, of last week, President Herrick said that the improvements in grading and bulking grain had produced its logical result in the increasing stocks held here and in the vicinity. He suggested, says Bradstreets, that a modification of the trade rules, permitting the delivery on contracts of either winter or spring wheat (at a difference of say 10c. per bushel), would in all probability result in the increased storage here of spring wheat during the period of cheap freights to await favorable sales abroad. This would also tend to restrict the limits of corners in grain. The opinion was expressed that there is a fair prospect of important modifications of foreign strictures of imports of American provisions during the coming year. After mentioning that a draft of an international bill of lading had been prepared for consideration by the Exchange, and which (with or without modification)

is designed to go into effect September 1 next, Mr. Herrick spoke substantially as follows regarding the new method of flour inspection and the promise it holds out to the flour trade for a wider (and more speculative) business: By the unanimous action of the flour trade a change has been made in the system of flour inspection, which was heretofore conducted by private parties, although nominally under the supervision of the Exchange. It has now become a regular bureau of the Exchange upon the same plan as our grain inspection department, which has proved satisfactory after several years' experience. A surplus fund will gradually accumulate, which will afford a guaranty for the payment of any losses caused by mistake or error in the inspection of flour. Under the system of flour inspection which obtains in France a large and profitable business is carried on in contracts for future delivery. Under our new system there is no good reason why transactions in flour may not be largely increased, and the trade thereby assume the importance which grows out of the facility to buy or sell in large quantities on the basis of a fixed standard of inspection.

A CORRESPONDENT of Bradstreets writing from Sydney, under date of April 24, says, the official returns show that the yield was somewhat less than the estimate. The average return was eight bushels per acre. The Victoria agricultural statistics are more favorable than the estimate. The yield of wheat has been 15,489,143 bushels, being an increase of 6,747,689 bushels over the previous crop. The yield of barley was 1,060,166 bushels, and of oats 4,735,289 bushels, an increase in each case. The wheat averaged 14.09 bushels per acre, against 9.03 in 1883. Victoria had 1,351 acres in hops last season and 1,312 acres in tobacco. Its vintage gave an increase of 190,000 gallons of wine. The tobacco crop of New South Wales was remunerative, as were also its wine and sugar. In South Australia the wine-making interest is flourishing. Gold mining and sugar raising are prosperous in Queensland, but the want of cheap labor is the chief drawback in the northern parts, although there are a great many unemployed whites.

MANY reports of damage done to crops by frost on May 28 and 29 have been received from all parts of the country. At Port Jervis early plants and fruits were injured. The same report came from the towns along the Delaware river. At Monticello, N. Y., ice formed on the ponds. Tobacco plants were frozen at Lancaster, Pa. Around Reading, potatoes and early vegetables were somewhat damaged. Tobacco, small fruit, and vegetables, were badly damaged in Wisconsin. Ice formed 3/4 of an inch thick on the ponds. In northern Ohio the frost did considerable damage to fruit, vegetables, and grain. Much damage is also reported from all parts of Michigan. Around Ottawa, Canada, fruits were considerably injured. There was a very light frost at Lacrosse, but none in Minnesota, Dakota, or Montana. The crops are in good condition in those sections, and the outlook improves daily. Spring wheat in the Northwest is reported to be thriving. Throughout Southern New York the crops were a good deal damaged. Water froze a quarter of an inch. Many fields of tobacco and potatoes were ruined, the frost cutting the plants even with the ground. Market gardens were badly damaged. It is not too late, however, to replant the damaged fields and gardens. The grape-growing sections around Seneca Lake report serious damage. Apples having scarcely changed from buds to the fruit formation, are damaged to some extent.

Advices from San Antonio and Chappel Hill, Tex., report considerable damage to crops and cattle by floods. At the latter place fine cotton lands for ten miles along the river are submerged three feet, for a distance of over one hundred miles from its mouth. The Brazos has overflowed both banks, destroying many thousands of acres of crops. Bunches of cattle caught in the flooded districts and now hemmed in, are reported to be starving or drowned. Several points within the late storm belt reported heavy rains again, but no general renewal of the floods is now feared. Railroad traffic is being slowly resumed.

THE Great Western Mfg. Co., of Leavenworth, Kan., has ordered sixteen pairs of Allis roll in Gray's noiseless belt frames.

THE BEST AND CHEAPEST COB CRUSHER IN THE WORLD.

Steel Being Used in its Construction.

PRICE, 30.00.

RIGHT-HAND MILL.

CAPACITY 75 BUSH. PER HOUR.

Thousands of these Crushers are now in use, and giving entire satisfaction.

Please Send for Circulars.

R. C. McCULLEY, LANCASTER, PENN.

PATNET MILLSTONE CEMENT

Invaluable to Millers for Repairs and Seams in French



ing and Filling the Joints, Cavi-Burr and other Millstones.

This is a new article of manufacture, and is common use by millers. It is much cheaper, son. It is perfectly harmless, containing nature and attains the hardness of French only fills the cavity, but adheres to and be-grinding. Good Millstones are now in use, composed entirely of this preparation. The

LEADING MAKERS ARE ADOPTING IT TO BUILD THEIR MILLSTONES.

For miller's use, it is put up in cases of about 50 lbs. Price per case, \$5.00.

We cannot open an account for so small a sum, therefore Cash should be sent with order otherwise we shall send C. O. D. by Express, collecting for return of the money.

For manufacturers, we furnish in bbls. of 300 lbs. Price upon application.

Emery Rub Stones, for hand use in Finishing the Furrows and Faces of Millstones.

Union Stone Co., 38 & 40 Hawley Street, Boston, Mass.

Union Emery Wheels, Emery Wheel Machinery and Tools a Specialty. Wooden Polishing Wheels, Grinders' and Polishers' Supplies. Catalogue on Application.

EMERY, QUARTZ, CORUNDUM.

NORDYKE & MARMON CO., INDIANAPOLIS, IND.

Builders from the Raw Material of

ROLLER MILLS, CENTRIFUGAL REELS, FLOUR BOLTS.

WE ARE THE SOLE OWNERS FOR THE UNITED STATES, OF ALL THE PATENTS UPON THIS ROLLER MILL.

This Is the Only Roller Mill Made Having All the Essentials Needed In Successful Milling.

500 BARREL MILL IN MISSOURI.

Read what an Old Miller who has Thirty-Four Pairs of these Rolls in Constant Use, Says:

MESSRS. NORDYKE & MARMON CO., INDIANAPOLIS, IND.

Gentlemen: In regard to the workings of our new mill erected by you, will say it is working fully up to and beyond our expectations. Our average work is fully 33 per cent. over your guarantee. Since starting our mill last July we have had no complaint of our flour from any market where sold. It gives universal satisfaction, and we have it scattered on the trade from Chicago to Galveston, Texas. Our yields are all that are attainable. We have tested it on both Spring and Winter wheats with satisfactory results on both varieties. Since the mill was turned over to us we have not changed a spout or a foot of cloth, nor have we found it required to make any changes. We have run as long as six days and nights without shutting steam off the engine, not having a "choke" or a belt to come off. The mill is entirely satisfactory to us, and for a fine job of workmanship, milling skill and perfection of system, we doubt if it is surpassed in the United States to-day. It is certainly a grand monument to the ability and skill of Col. C. A. Winn, your Milling Engineer and Designer. You may point to this mill with pride and say to competitors, "You may try to equal, but you will never beat it." Wishing you the success that honorable dealing deserves, I am,

OFFICE OF DAVIS & FAUCETT MILLING CO.,
ST. JOSEPH, MO., Nov. 28th, 1883.

Yours, etc.,
R. H. FAUCETT, PRES.

500 BARREL MILL IN ILLINOIS.

MESSRS. NORDYKE & MARMON CO., INDIANAPOLIS, IND.

Gents: We started up our mill in June last year, and it gives us pleasure to say that your Roller Mills are doing splendid work and give us no trouble. Your milling program required no changes, and concerning yields, we get all the flour from the offals, and we sell our best grades in the principal markets of the United States at the highest prices offered for any flour. All the machinery made by you is first-class, and we would not know where to purchase as good.

OFFICE OF DAVID SUPPGER & CO.,
HIGHLAND, ILL., Jan. 10, 1884.

Yours respectfully,
DAVID SUPPGER & CO.

125 BARREL MILL IN INDIANA.

NORDYKE & MARMON CO., INDIANAPOLIS, IND.

Gentlemen: The 125 barrel All Roller mill you built us has been running all summer, and does its work perfectly. Before contracting with you for this machinery we visited many Roller Mills throughout the West and Northwest, built by the different leading mill-furnishers, and from all we could see, those built by you seemed to be giving the best satisfaction, and this is why we bought our machinery of you. Our mill comes fully up to your guarantees, and the capacity runs over your guarantees. The bran and offal is practically free from flour, and our patent and bakers' flour compares favorably with any we have seen elsewhere. I don't think anyone can beat us. Your Roller Machines are the best we have seen; they run cool, and the interior does not sweat, and cause doughing of the flour. Judging from our success, we would recommend other millers to place their orders with you.

LAPEL, MADISON COUNTY, IND., Jan. 10, 1884.

Yours truly,
J. T. FORD.

Letters on file in our office from a large number of small roller millers giving as favorable reports as above. A portion will be published as occasion demands.

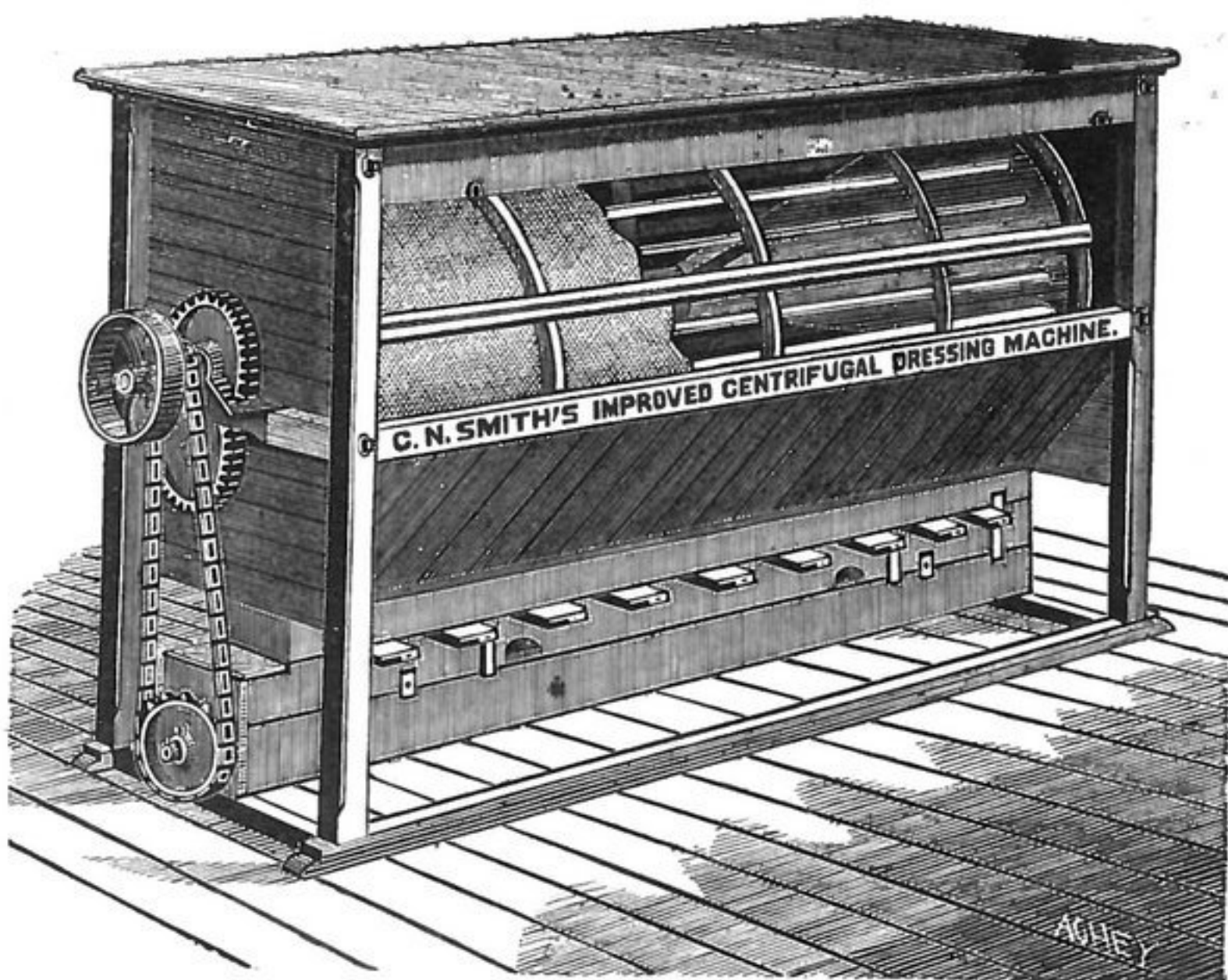
SPECIAL MILLING DEPARTMENT!

Mill Builders & Contractors--Guarantee Results

Motive Power and Entire Equipment of a Modern Mill Furnished under one Contract.

CENTRIFUGAL BOLTS

BEST IN THE MARKET
AND
FOR THE LEAST MONEY.



EVERY MACHINE WARRANTED.
Send for Price List and Catalogue.

Read This.

MR. C. N. SMITH, DAYTON, OHIO.

GEO. PRIEST & CO., ILLINOIS CENTRAL ROLLING MILLS,
DECATUR, ILL., May 15, 1883.

Dear Sir: After using your Centrifugal Flour Dressing Machine for about five months, we have no hesitation in saying, we deem it superior to all others. We are running another machine of different make, and deem yours the superior. We cordially recommend your machine, and know parties will do well in putting the same into their mills.

Yours truly,

GEO. PRIEST & CO.

MANUFACTURED BY

C. N. SMITH, DAYTON, O.
MANUFACTURER OF MILL FURNISHINGS.

HEAD LININGS AND COILED BARREL HOOPS.

Our Celebrated Patent Head Linings are straight rounded on their upper edge nail on barrel. They will freely through the square are packed. We can furnish from twelve to seventy-two GOOD Head Lining can



Round Edge Bent Barrel grained from end to end, and crimped or bent ready to not mold, as the air circulates bundles of 250 in which they them any desired length, inches, and as cheap as any be sold.

CAN FILL ALL ORDERS AT SIGHT.

REED & SILL COOPERAGE CO.,

DETROIT, MICHIGAN.

PORTABLE FORGES } Empire Portable Forge Co.
Cohoes, N. Y.
Send for Catalogue.



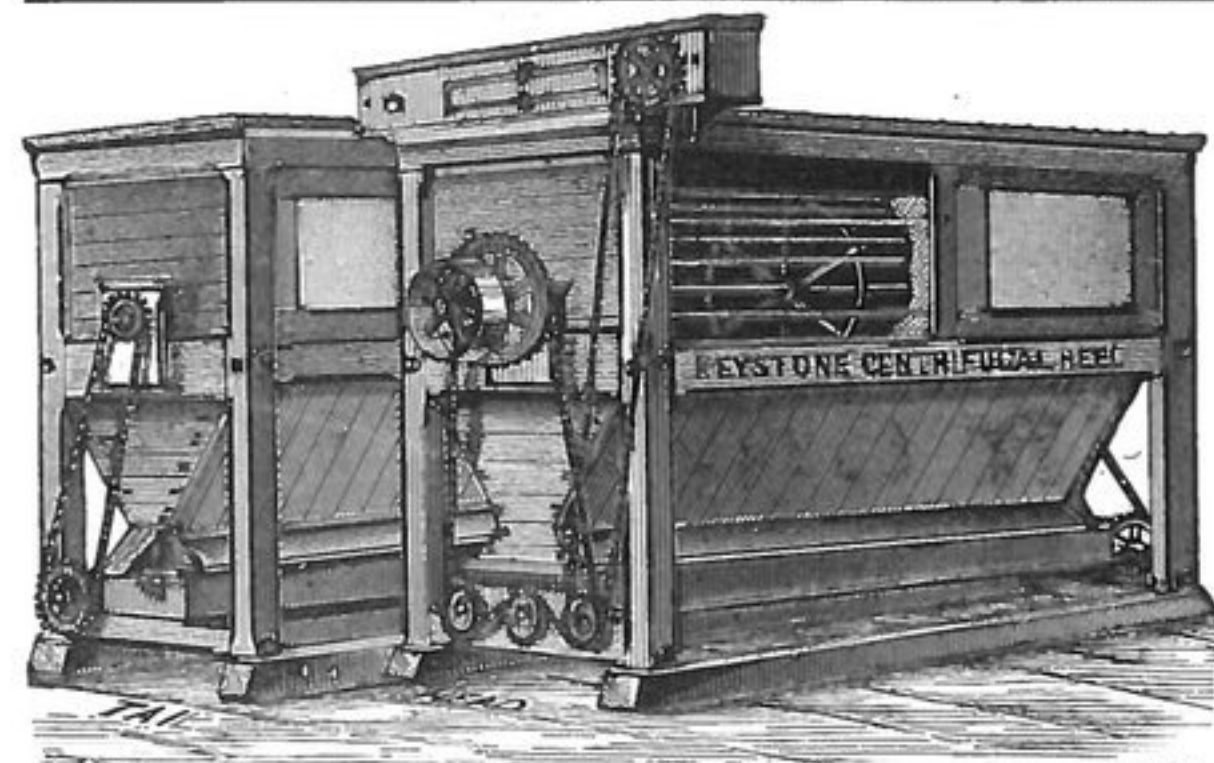
CORN & COB CRUSHERS

PRICE, \$15.00.

Send For Circular.
SHAFTING, PULLEYS & HANGERS.

Pulleys a Specialty, Large or Small. Address,

T. B. WOOD & SONS, CHAMBERSBURG, PA.



KEYSTONE CENTRIFUGAL REEL

—[PATENTED MAY 6th, 1884.]—

Drag Brush Feed, Tightest Heads, Best Results. Cheapest and Best on the Market. Adapted to all Kinds of Milling. The New Drag Feed Thoroughly Protects the Silk. Sent on Trial to any Responsible Miller.

BEST QUALITY FRENCH BURR MILLSTONES FOR MIDDINGS, WHEAT AND FEED, ROLLER MILLS, SCALPING REELS, PULLEYS, SHAFTING, AND ALL KINDS OF MILL IRONS. FULL STOCK DUFOUR AND DUTCH ANCHOR BOLTING CLOTH. LEATHER, RUBBER AND COTTON BELTING OF BEST QUALITY. EVERYTHING NEEDED IN A FLOUR MILL FURNISHED AT LOWEST MARKET PRICES.

For Circulars, Prices, and Full Particulars, Address the Manufacturer,

C. K. BULLOCK, 1357, 1359, 1361 RIDGE AVE., PHILADELPHIA, PENN.

The Rounds Sectional Roller Mill

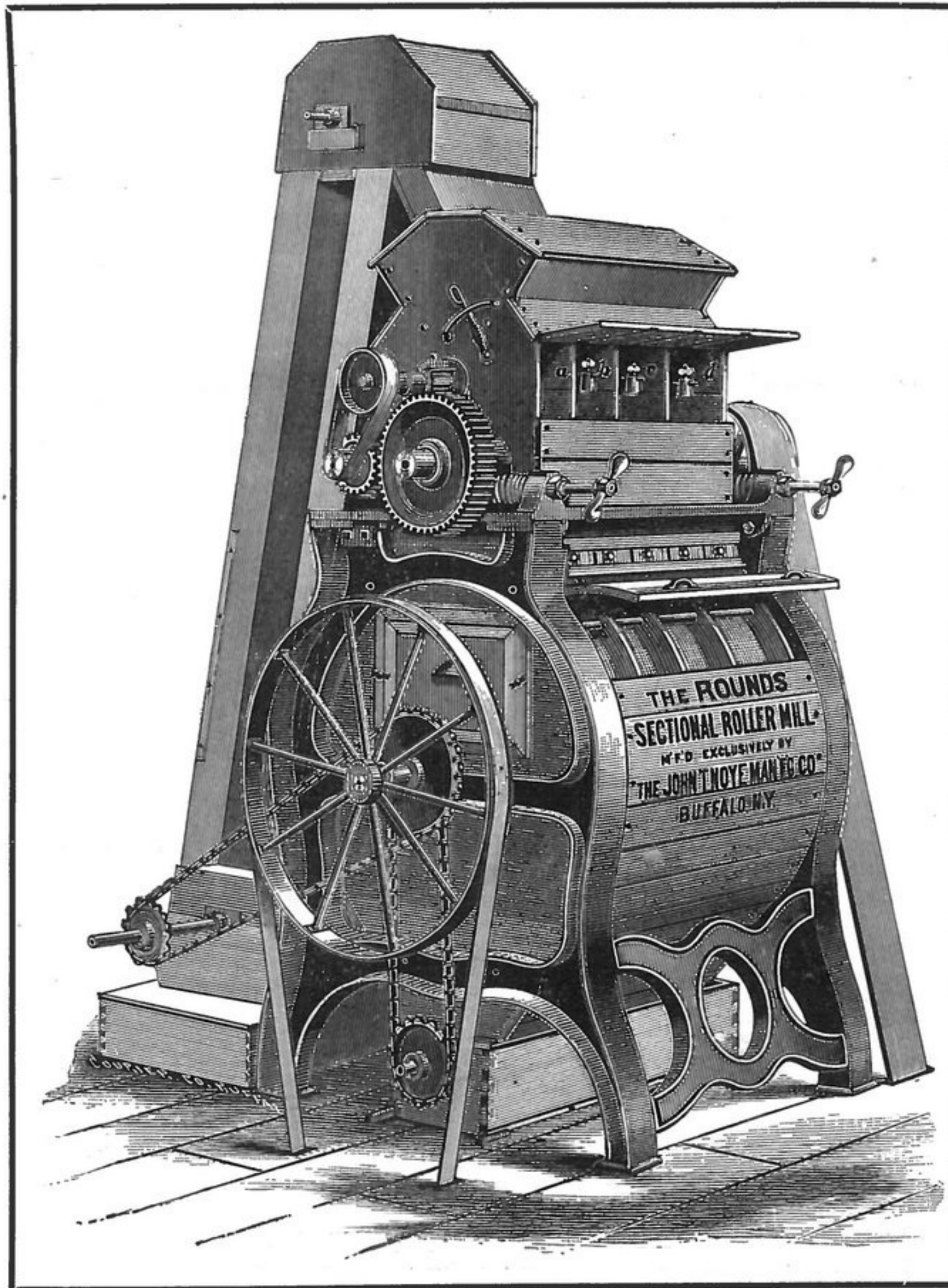
*Is Especially Adapted for
Custom and Exchange
Millers.*

Can be Adopted with less outlay
of money, and will produce more
satisfactory results than any other
roller mill manufactured.

STEVENS
CORRUGATIONS.

This mill is in successful
operation in hundreds of
mills, and not one has
failed to come up to
the capacity and
work guaranteed.

CORRESPONDENCE SOLICITED.



*Unquestionably the Roller
Mill for Merchant
Millers.*

Perfect in its operation, and it
requires less power than any
similar roller mill in the world.

STEVENS
CORRUGATIONS.

Enables the miller to adopt
the roller mill system with
less expense than by
any other method.

Send For Illustrated Catalogue
and PRICE LIST.

THE J. T. NOYE MANUFACTURING CO., BUFFALO, N. Y., U. S. A.

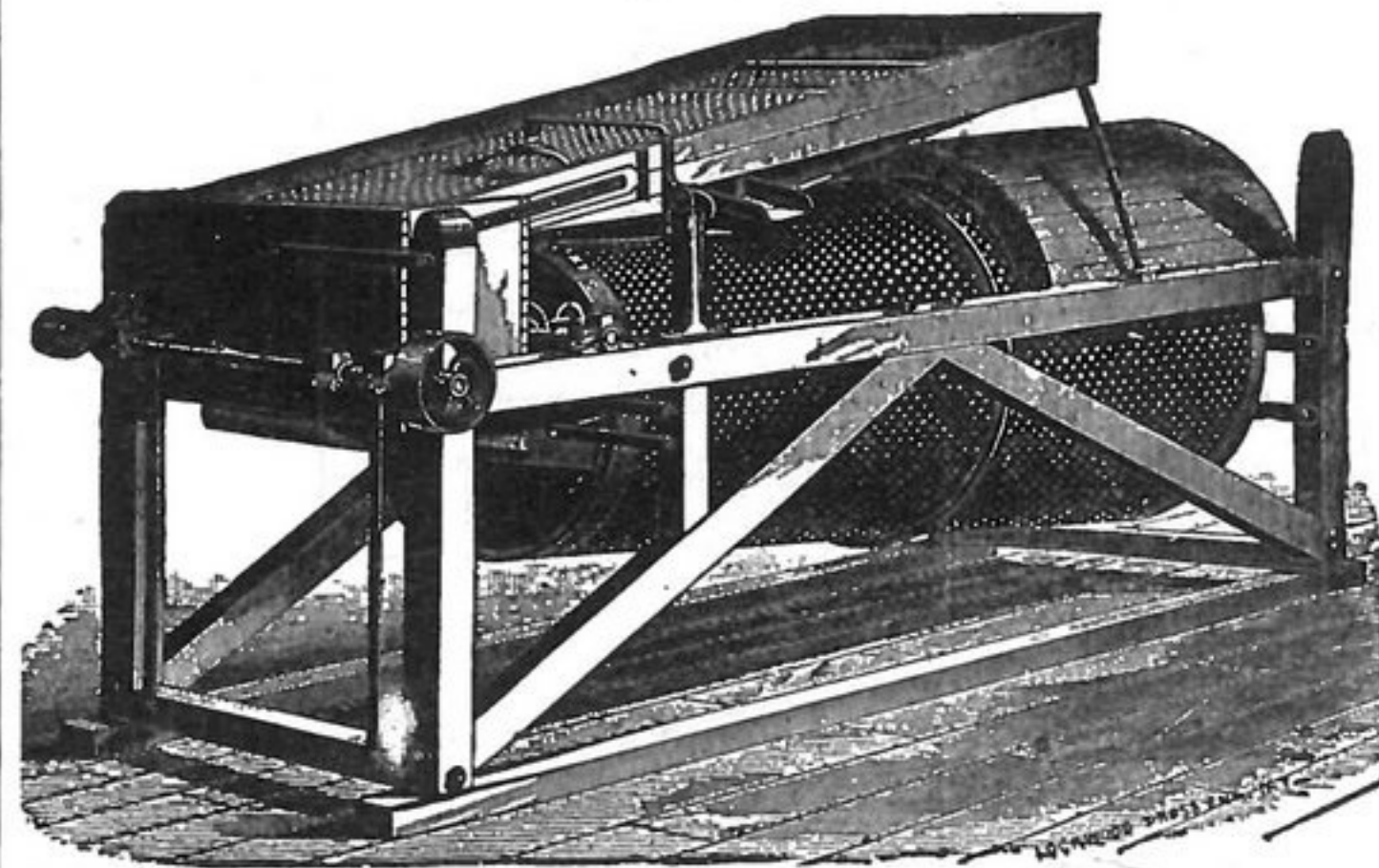
BEWARE OF SECOND-HAND STEVENS' ROLLER MILLS OFFERED BY ONE OF OUR COMPETITORS
THEY WERE MADE IN 1881 AND HAVE SINCE PASSED THROUGH A FIRE.



THE BEST
BOLTING CLOTH
— IS —
C. SCHINDLER-ESCHER'S.
STRONG AND DURABLE.
Ask Any First-Class
Mill Furnisher
For It.

Cockle Separator Mfg. Co., Milwaukee, Wis.

GENERAL MILL FURNISHERS.



MANUFACTURERS OF
Improved Kurth's Pat.
COCKLE SEPARATOR,
Built also in combination with
Richardson's Dustless
Wheat Separators.
Large Capacity Combined With
Good Quality of Work.
Beardslee's Patent
GRAIN CLEANERS
Fully Guaranteed to Give the Best
of Satisfaction.
Pott's Pat. **Automatic Feeder**
for Roller Mills, Purifiers, etc.,
very Simple and Cheap.
Perforated Sheet Metals
AT LOW PRICES.

Send for Circulars and Catalogues.

THE EXCELSIOR ANCHOR BOLTING CLOTH TO THE FRONT.

RECOGNIZED AS THE QUEEN OF ALL BOLT
CLOTHS BY ONE-THIRD OF THE MILL OWN-
ERS, MILLERS AND BUILDERS IN THE UNITED
STATES, AND THEIR VERDICT IS "GIVE US THE
EXCELSIOR AND NO OTHER!" SEND FOR DIS-
COUNTS AND PRICES FOR MAKING UP, WHICH
ARE GREATLY REDUCED.



RECOGNIZED AS THE QUEEN OF ALL BOLT
CLOTHS BY ONE-THIRD OF THE MILL OWN-
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STATES, AND THEIR VERDICT IS "GIVE US THE
EXCELSIOR AND NO OTHER!" SEND FOR DIS-
COUNTS AND PRICES FOR MAKING UP, WHICH
ARE GREATLY REDUCED.

HUNTLEY & HAMMOND, SOLE IMPORTERS, SILVER CREEK, N. Y.

Successors in the Bolting Cloth Trade to Huntley, Holcomb & Heine, Holcomb & Heine and Aug. Heine.